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# ***JPRS Report***

## **Epidemiology**

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# Epidemiology

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8 January 1992

**NOTICE TO READERS** [Recent materials on AIDS is being published separately in a later issue.]

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## ANGOLA

### UNITA Health Ministry Foresees High Infant Mortality

*MB2011103191 (Clandestine) Voice of Resistance of the Black Cockerel in Portuguese to Southern and Central Africa 0500 GMT 20 Nov 91*

[Text] Contagious diseases will annually claim the lives of 60,000 Angolan children under the age of five due to the lack of a sound vaccination program.

Statistics disclosed by the National Union for the Total Independence of Angola's Health and Welfare Ministry say that 300 out of every 1,000 children died before reaching their first year. Tuberculosis, whooping cough, poliomyelitis, diphtheria, tetanus, measles, and yellow fever are the main diseases behind the high mortality rate in Angola. It will be recalled that Angolan children have been receiving very little attention from the Government of the People's Republic of Angola, as can be seen by the thousands of street children awaiting a new Angolan Government—that is, a UNITA government.

## GHANA

### Boreholes Reduce Guinea Worm in North

*92WE0078 Accra PEOPLE'S DAILY GRAPHIC in English 18 Sep 91 p 1*

[Text] There has been a 77 percent reduction in the incidence of guinea worm disease in the Nanumba District of the Northern Region as a result of the sinking of 159 boreholes.

Dr. Sam Bugri, Northern Regional Director of Medical Services, told the Ghana News Agency at Tamale on Monday that the number of guinea worm cases in the district reduced from 14,200 in 1989 to 3,241 last year as a result of the boreholes which were sunk between January 1988 and March 1989 with Japanese government assistance.

Dr. Bugri, who is also the national Coordinator of the Guinea Worm Eradication Programme, said in 1989 the infection rate in the district was 132 per 1,000 persons.

But this was reduced to 30 per 1,000 persons in 1990.

He described as spectacular, the reductions in the incidence of the disease in other districts particularly in the Yendi, Gushiegu/Karaga and East Gonja Districts which recorded more than 10,000 cases in 1989 but had 5,175, 8,251 and 8,859 cases respectively in 1990.

These districts also had an improvement in the supply of potable water, he explained.

Dr. Bugri said while all three districts had more than 100 cases per 1,000 persons in 1989, only Gushiegu/Karaga had more than a 100 cases per 1,000 persons last year,

adding that, "by the end of this year, no district should have more than 100 cases per 1,000 persons".

## IVORY COAST

### Twenty-Five Dead in Prison Cholera Epidemic

*92WE0075B Abidjan FRATERNITE MATIN in French 12 Sep 91 p 3*

[Article by Josette Barry: "Cholera Epidemic at the Detention Center and Penitentiary: 10 More Dead"]

[Text] The cholera epidemic that broke out last Sunday at the Abidjan detention center and penitentiary, in Yopougon, made more victims yesterday.

Ten additional cases brought up to 25 the number of deaths recorded since the start of the epidemic. Yesterday at 1630, the minister of justice, Mrs. Jacqueline Oble-Lohoues, went on location in order to, in her own words, "assess the extent of the disease and see how it can be brought under control." She answered questions from the journalists who were there, after a working meeting with all those involved (SODECI [expansion not given], Hygiene Institute, SAMU [emergency medical assistance service] and infirmary doctors, detention center management, Ivorian Company for Grouping and Management (IGG), contractor in charge of pipe maintenance, etc.)

The working meeting was followed by a tour of the infirmary and water facilities. Journalists were not invited to join the tour.

On behalf of the president of the Republic, the minister of justice offered her sympathy to the families of the victims; she then said that the disease might be due to "water-related problems," without stating the exact cause. She also said that samples taken since Tuesday by the Hygiene Institute departments, and research carried out by SODECI will make it possible to pinpoint the origin of the disease.

Meanwhile, individuals living in the penitentiary staff quarters have indicated that there had been a pipe failure. In addition, the explanations provided by the registrar to the minister of justice while we where there indicate that there is a problem at the water station.

### Buried at State's Expense

It seems that this pipe failure, which led to water contamination, had been reported some time ago by the inmates....

Yesterday, therefore, the infirmary staff, with SAMU support, was still trying to save the sick with drugs from the public health pharmacy. The day before, all inmates were vaccinated, as well as the penitentiary staff. The latter, however, were concerned about their families, who had not yet been vaccinated yesterday.

We know, however, that a cholera epidemic will be more serious in an insalubrious environment. Now, the detention center is overcrowded (6,000 or so inmates in a center built for 1,500), it suffers from serious sanitation problems, and it could promote contagion to a catastrophic extent. The minister of justice is aware of that and acknowledged it, but she asked: "Should we release people who are actually guilty because of overcrowding?" She asserted, however, that the inmates are human beings who have the right to receive care and assistance.

For the time being, in order to prevent further contagion, the minister said that the inmates could be transferred to the yard of the detention center during the day, while the cells are thoroughly cleaned. Let us hope that will stop the "scourge."

An important decision of the minister is that the bodies of the deceased inmates will not be returned to their families. This decision was made, she said, to prevent any contamination on a national level. The deceased will be buried at State's expense by IVOSEP [expansion not given]. The families will be allowed to accompany the remains of the deceased to the cemetery.

#### **Black Cercosporiasis Affecting Bananas**

92WE0075A Abidjan FRATERNITE MATIN in French  
19 Sep 91 p 7

[Article signed R.N.: "Alert: 'Banana Tree AIDS' Is Coming"]

[Text] Plantain banana growers are now facing an enemy that they should fear: black cercosporiasis, the worst of all plantain diseases, has been reported in our country in the past few months. Symptoms of the disease were observed by IRFA [expansion not given] researchers in plantations near Aboisso; there is no longer any doubt that black cercosporiasis has reached the Ivory Coast. "Most of the plantations we inspected beyond Ayame presented symptoms of attack by black cercosporiasis," Mr. Kehe Martin, the IRFA assistant director, indicated; "these observations," Mr. Kehe added, "were confirmed by laboratory analyses. In other words, this is no longer a threat; it is a fact." Therefore, the IRFA assistant director suggested, technical schedules for growing plantain should include measures to control the disease, which some present as the "AIDS of the banana tree."

When black cercosporiasis attacks a plantation, the leaves, all the leaves of the banana trees dry out, somewhat as if burned by fire.

According to researchers, the disease comes from Ghana where it is said to have caused much damage. It was expected to appear in the Ivory Coast sooner or later. "Since 1985," Mr. Kehe confided, "we were expecting the disease to arrive here." It did, and the problem now is to develop control means to prevent it from spreading. The IRFA is thinking about a control strategy that would prove effective. As the IRFA assistant director acknowledged, that will not be easy. Planters are not familiar

with the use of the most ordinary pesticides by spreading them on the ground. It is not at all certain that they will agree to the aerial spreading that will be required to effectively control the disease, a sort of fungus that is visible only through the damages it causes. At least for those who are not crop-protection experts.

#### **KENYA**

##### **Typhoid Outbreak in Uasin Gishu District**

92WE0081B Nairobi THE KENYA TIMES in English  
4 Oct 91 p 5

[Text] There is an outbreak of typhoid fever in Uasin Gishu District, the District Medical Superintendent, Dr. John Kibosia, said yesterday and advised area residents to boil drinking water.

Dr. Kibosia said there have always been cases of typhoid fever in the district, but of late the numbers had shot up. "The frequency of patients suffering from the disease is just too high," Dr. Kibosia said and added that it was surprising that most of the cases were from within the municipality, where the residents are supposed to be drinking treated piped water. He told the press that typhoid is usually a water borne disease, but also revealed that it can be spread by fecal contamination.

Investigations by the Kenya News Agency in the Uasin Gishu Memorial Hospital laboratory revealed that over 172 cases had tested positive to the disease in the month of September alone. A nurse at the hospital, who sought anonymity said they were admitting an average of four patients a day in the hospital.

When reporters visited the hospital yesterday, three of the hospital's staff had been admitted with the fever. They included the hospital's pharmacist and a secretary at the same hospital. A specialist physician at the hospital, Dr. J. Faraj, was seen issuing laboratory test forms to the rest of the hospital's staff for a laboratory test.

Dr. Kibosia advised people staying in the rural areas to construct latrines and desist from the habit of using neighboring bushes as their toilets.

Two months ago, KNA carried a story in the local press to the effect that out of every 25 homes in the rural areas in the district, only one had a latrine, according to a research carried out by the District Public Health Officer.

Dr. Kibosia said some of the victims could not be suffering from the disease if they had latrines. He added that lack of latrines made it easier for the flies to spread the disease.

Interviewed in the hospital wards, most of the typhoid patients expressed dissatisfaction with the municipal council water, saying that it might not be properly

treated. The Eldoret Municipal clerk, Mr. Joseph Kendagor or the Municipal Public Health Officer, Mr. Reuben Rotich, were not available for comment.

According to a source at the Memorial Hospital, the symptoms for the disease are similar to those of malaria. The source said the only difference was the severity of the stomach ache that one experiences with typhoid, followed by severe diarrhea and vomiting. If one does not seek medical attention at once the diarrhea will turn to blood and the victim will be terribly dehydrated. The source added that the disease can kill within a few days.

## NAMIBIA

### More Than 400 Malaria Deaths During Rainy Season

*MB1811054191 Windhoek Namibian Broadcasting Corporation Network in English 1900 GMT 17 Nov 91*

[Text] More than 400 people in Namibia died of malaria during the worst rainy season, when the number of cases reportedly increased by nearly 150 percent compared to the previous season. Health and Social Services Minister Nicky Iyambo said a new malaria control program had been designed by his ministry with the help of the World Health Organization. The program will be launched early next year.

## NIGERIA

### Yellow Fever in Delta State Kills 100

*AB0911215091 Paris AFP in English 1539 GMT 8 Nov 91*

[Text] LAGOS, Nov 8 (AFP) - Yellow fever has claimed some 100 lives in an outbreak affecting Nigeria's southern Delta state, the official News Agency of Nigeria (NAN) reported Friday [8 November].

NAN, quoting Delta state's director of public health, Dr. Isaac Mebitaghan, said the disease broke out four weeks ago in Aniocha north district and had since spread to five other areas.

Dr. Mebitaghan said the government had begun vaccinating people in the affected areas and the state had asked the federal Ministry of Health to provide more vaccines.

### Gastroenteritis Spreading in Kwara State

*92WE0077 Lagos THE GUARDIAN in English 22 Aug 91 p 20*

[Text] Nine other local government areas in Kwara State are now battling against gastroenteritis—an intestinal disease—which has killed 34 persons in weeks. It first hit Edu area.

No fewer than 70 deaths have been recorded in the last six months, Health Commissioner Mallam Isa Ibrahim said yesterday in Ilorin.

In the battle are: Ifelodun, Ilorin, Asa, Oyun, Irepodun, Okehi, Borgu and Kaiama council areas.

Mallam Ibrahim said since the outbreak, a total of 296 cases and 70 deaths, with a fatality rate of 23 percent had been reported. Sixty communities are affected.

A breakdown shows that, as at last week, 10 of 51 cases resulted in death in Edu Council area, Ifelodun 32 cases, 11 deaths, Ilorin 69 cases, 18 deaths, Asa 24 cases, five deaths and Okehi 12 cases, but no deaths.

Others are: Borgu—20 cases, seven deaths, Kaiama 31 cases, six deaths, Oyun 17 cases, four deaths and Irepodun—40 cases, nine deaths.

Gastroenteritis is an acute intestinal disease characterized by vomiting and profuse stooling which result in rapid dehydration, sudden collapse and death. The disease thrives in a filthy environment and spreads rapidly through contamination of water or food.

According to Mallam Ibrahim, its cause is yet to be fully established, but cholera has been feared to be responsible. Laboratory results from the Ilorin University Teaching Hospital (IUTH) and the public health laboratory did not, however, support the suspicion. It is believed to be a mixed infection due to cholera and typhoid fever, he said.

## SOUTH AFRICA

### Tuberculosis Crisis in Western Cape Evaluated

*92WE0098A Cape Town THE ARGUS in English 21 Oct 91 p 9*

[Article by Clive Sawyer, Municipal Reporter and Vivien Horler, Medical Reporter: "No Beds, No Money as Killer Disease Runs On"]

[Text] People with a killer disease sweeping the Western Cape are facing complications caused by a cash crisis and political bickering.

Tuberculosis, a disease which is preventable and curable, struck more than 11,300 people in the Western Cape in the first eight months of this year.

Last year there were 19,582 new cases in the region, which extends from the Namibian border through Beaufort West to Plettenberg Bay. There are five TB hospitals in the region, two in Cape Town.

As people die, still on the waiting list for admission to the Cape Town TB hospitals, provincial and local authority medical officials have pointed fingers at each other about who is to shoulder the burden.

And at a Retreat hospital, where 100 urgently needed beds were closed to save the Cape Provincial Administration money, the administrator has spoken out for the first time about staff disappointment at the decision.

"People don't realise how many people are dying every day from TB," said Miss Julie Roelofse of the DP Marais Hospital. "There is most definitely a need for those beds, but my hands are tied."

The CPA has promised to open more beds "in phases," but no timetable has been set because of its own financial crisis.

The shift of 90 percent of the burden of TB treatment to local authorities, as waiting lists for admissions grow, is at the heart of the controversy.

The implications of the situation have a bearing on the increasing seriousness of the AIDS epidemic. According to the latest figures available, there are now 1,000 HIV-positive people in the Cape.

There is growing concern about TB and its association with the AIDS virus. Many South Africans have been infected with TB in childhood, but their immune systems keep the disease quiescent.

Should their immune systems be compromised, as happens when infected with HIV, tuberculosis develops. This HIV-associated TB is often difficult to diagnose because sputum tests are negative and many of the clinical features are unusual.

According to the Department of Health, TB represents the most serious opportunistic infection in HIV-positive people in Africa, similar to the unusual pneumonia that affects HIV-positive patients in the United States and Europe. This pneumonia, *pneumocystis carinii*, is regarded as an "AIDS-defining" disease.

Provincial and local authorities have clashed publicly over the disclosures that the DP Marais TB Hospital, re-opened with 300 beds last year to cope with the soaring number of cases, was forbidden by a CPA directive to use more than 200 beds.

Patients are referred to the hospital, which was closed in 1965 as TB rates started to fall, by the Brooklyn Chest Hospital, where medical superintendent Dr. P.G. Morris said the waiting list was growing at a rate of five a day.

And TB hospitals at Paarl and Brewelskloof, near Worcester, are full.

Dr. George Watermeyer, CPA health and hospital services executive director, said the decision not to open the unused 100 beds at DP Marais Hospital was a "straightforward financial" one.

"It is common knowledge that the CPA has major financial difficulties and there is tremendous pressure on all our hospitals," he said.

The basic handling of TB, involving out-patient treatment and a community support programme, was the responsibility of local authorities such as the Cape Town City Council.

"There is simply a greater need for hospital care than we can provide," he said.

Patients would be put on a waiting list and treated as soon as possible.

Hospitals were being urged to discharge patients as soon as they were on the road to recovery.

A major problem was the failure of many TB patients to follow through with treatment.

Dr. Watermeyer said the TB epidemic in the Western Cape was "static" while incidence of the disease was declining in other parts of the country.

In a statement, the CPA said it was "thoroughly aware" of the TB problem in the Western Cape, where about four percent of patients are treated in hospitals compared to the national figure of 24 percent and 47 percent in Natal.

"Nevertheless, the recovery rate of 77 percent is better than the national recovery figure of 75 percent," the statement said.

An "illustration of CPA's commitment to TB treatment" was last year's decision to open 200 beds at the DP Marais in the middle of a serious budget deficit.

Miss Roelofse of the DP Marais, said the hospital had opened last year with authorisation to use 150 beds, and plans to expand into the full 300 beds at the beginning of the current financial year.

"We were using 238 beds, but were then told we could use just 200 beds. We are geared to cater for 300 patients, although if we had that many we might need an additional sister and a nursing assistant."

Miss Roelofse said: "The CPA finances us at a patient-day rate, and if they keep the number of patients down they keep our budget down. But people are sick, and these are the people with no fixed abode."

The CPA statement said "no seriously ill TB patient who requires hospitalisation will be turned away," but it is understood that people have been turned away from the Brooklyn Chest Hospital.

City medical officer of health, Dr. Michael Popkiss, who is to meet top CPA officials next month to discuss the TB crisis, greeted the CPA claims with criticism.

"This situation is the result of the State closing thousands of TB beds in the late 1970s and early 1980s, and removing in-patient treatment from our control," Dr. Popkiss said.

The city council was putting constant pressure on the State to re-open the much-needed beds.

"The fact is that in-patient treatment is the sole responsibility of the CPA, because they took away hospitals once operated successfully by local authorities," Dr. Popkiss said.

Tackling the TB crisis was being forced on local authorities by the lack of beds, he said.

Countrywide, there is one bed for every five notifications of TB—but in the Western Cape the shock statistic is one bed for 25 notifications.

"Out-patient treatment is unsuited to at least 30 percent of TB victims, because they are unemployed and of no fixed abode, making follow-up extremely difficult," Dr. Popkiss said.

"But here in the Cape, local authorities are expected to handle 90 percent of TB patients," he said.

Paying tribute to city council clinic staff, Dr. Popkiss said they did excellent work in the face of "unbelievable" odds.

A spokesman for Santa said there had been 9,550 cases of pulmonary TB notified in the first eight months of this year in the Western Cape, but not all cases were notified.

"Sometimes people are virtually collapsing by the time they're treated.

"Many feel there is a stigma attached to the disease and hesitate to seek treatment, so that by the time they're diagnosed it's too late.

"There is also a problem with people starting the treatment and then failing to keep it up, and relapsing. This makes them doubly difficult to treat, for by this time their disease is resistant to the treatment, and they can pass this resistance form of the disease on, making the germ very difficult to kill off."

Out-patient treatment was an acceptable option, depending on how sick the patient was and how committed they were to completing the course.

## SWAZILAND

### Tuberculosis Kills Twenty in Four Weeks

MB2111094891 Mbabane THE TIMES OF SWAZILAND in English 21 Nov 91 pp 1, 32

[Report by Vusie Ginindza: "TB kills twenty more"]

[Text] Tuberculosis, otherwise known as TB, has killed 20 people in the past four weeks.

This brings to 65 the number of deaths from this disease since the beginning of this year.

The full statistics of cases that have been recorded by the TB office in Manzini now stand at 1,367 since the year began, 547 of which were diagnosed during the past four weeks.

So serious is the scourge that it surpasses the dreaded AIDS which, on record, has only killed 29 since it was first reported in the country in 1986.

Last year TB took 80 lives.

On the last report, TB specialist, Dr. C. Mabuza expressed disappointment, stating that there is not a flicker of hope that the TB catastrophe may subside.

She attributed her pessimism to the close link between TB and AIDS explaining that most of the cases might have been closely associated with the AIDS virus, although not diagnosed as such.

In an exercise to curb the escalating disease, Dr. Mabuza with her TB Control team embarked on a campaign to train Rural Health Motivators (Bagcuguteli), on ways and means to prevent and control the disease.

There is, however, small hope of the construction of a new TB Hospital, according to Dr. Mabuza.

She said, nevertheless, that Regional Units are more of a prerequisite than the hospital.

"Far more useful than a hospital. Firstly, a hospital will be one big centre that will be close to the lucky and very far to most.

"As you know, two months in hospital (the period each TB patient has to spend) is too much. It disturbs his emotions and he becomes home-sick most of the time. "Whereas, units will sprout on every corner of the country to serve a larger part of the nation who will not have to travel distances to get to hospital and will always be closer to his relatives. "This will help primarily on medication. A patient will not have to budget for time and money to get tablets and medicine."

### Brucellosis Cattle Disease Spreads in Hluti, Lavumisa

MB2111084291 Mbabane THE TIMES OF SWAZILAND in English 21 Nov 91 p 3

[Report by Vusie Ginindza: "Disease Strikes Cattle"]

[Text] Private farmers in Hluti and Lavumisa areas, have now been hit by the disease of cattle called brucellosis or contagious abortion.

The disease has added problems to these farmers who, before, had to contend with water and grazing.

This disease has been diagnosed in cattle tank areas in the Hluti and Lavumisa Districts in the last three months. In four of these areas, it had been the cause of abortions resulting in severe economic loss to the farmer.

According to Shiselweni Regional Veterinary Officer, Dr. Tim Jagger, brucellosis causes abortion in the cattle between the sixth and ninth months of pregnancy.

"It also can cause infertility in bulls. The disease is critical because it can also spread to humans, causing fever, headache, joint and muscle pains, and weakness."

Dr. Jagger further advised farmers to take hygienic precautions when handling cattle which have aborted and not to drink the milk from such animals.

"In humans, the disease is difficult to diagnose and treat."

He also revealed of a pending meeting for all private farmers with cattle in the Hluti and Lavumisa areas with the Veterinary Department, to be held at the Lavumisa Hotel tomorrow, Friday 22, at 9.00am.

"The meeting had been called to discuss this problem and how best to deal with it on private farms.

"Swazi nation land farmers are advised that brucellosis is under control. This control is achieved by the twice yearly vaccination of heifer calves by the Veterinary Department," he said.

## UGANDA

### Meningitis Outbreak in Mbarara District

92WE0076 Kampala THE NEW VISION in English  
23 Sep 91 pp 1, 20

[Article by Sam Mukalazi]

[Text] Over 40 people have died in Mbarara District, following an outbreak of meningitis in four counties. The district has no vaccines or even curative drugs to combat the disease.

Information received from Rugaga sub-county in Bukanga County, which is one of the worst hit areas, said by Thursday, 43 people had died of the disease. The most hit parishes are: Kihanda, Rwangabo and Nyamaningi.

About 160 people in Rugaga are also reported infected, and it is not known how many have died so far. The county has about 10,532 people, of which only 1,200 have been vaccinated against the disease.

Other counties affected are: Kashari, Ruhama and Bukanga. In Rushebeya parish of Ruhama County, one Kakwenzi lost a son and a daughter on September 12, while five other people are said to have died in the same parish on the same day.

An official from the District Medical Office in Mbarara confirmed the outbreak and expressed worry over the lack of vaccines. He said some orders had been made from Entebbe Medical Stores.

When THE NEW VISION visited the drug store at Mbarara Hospital, an official who preferred to remain

anonymous, confirmed the lack of drugs. He said the situation necessitated a quick dispatch of soluble penicillin (X-10), chloromphenical injection, tetracycline capsules, and about 1,500 doses meningitis vaccines.

Asked whether any efforts had been made to trace the drugs from Entebbe, the official said authorities in Entebbe had promised to dispatch the drugs early this week.

Efforts to contact the District Medical Officer for comment failed as he was reported to have gone to evaluate the situation in Rugaga.

### Bovine Pneumonia Prompts Quarantine

92WE0051B Kampala THE NEW VISION in English  
24 Aug 91 p 2

[Article by James Thopaco, UNA, Nebbi: "Vet Authorities Impose Quarantine"]

[Text] Veterinary authorities in Nebbi District have imposed a quarantine on the movement of cattle into, through, or out of the district following the out-break of the contagious Bovine Pluero-pneumonia (CBPP) in the district.

According to a source within the Veterinary Department, so far 132 heads of cattle have died since the disease struck the District in February this year.

According to Dr. Onedo of Veterinary Department the disease is likely to spread all over the district. He said it started around Nyaravur, Parombo and Aryiego in Erussi and has now extended to Nebbi division. "And recently, the disease has been reported in Atyak sub-county and Alwi in Panyango Division," said Dr. Onedo.

The doctor remarked that the quarantine was not meant to punish people but to try and cover as many animals as possible so that the disease is eliminated.

He advised farmers isolate or slaughter affected animals. "Milk, meat, hides and skins do not spread the disease to humans," he clarified.

He told butchers who would like to continue with selling meat in their butcheries to desist from moving animals they intend to slaughter on foot. He explained that this spreads the disease and advised that animals should be transported in vehicles. He said the disease can spread from one animal to another 30 metres away.

Dr. Onedo lamented the poor vaccination coverage which he said since April has been 17 percent (4,948 heads of cattle) in Padyere county only. Yet the estimated heads of cattle in Padyere alone is 28,753. He said because of lack of vaccines, the department could not cover Jonam and Okoro counties.

Turning to the history of CBPP in Nebbi district, the doctor said the disease was first reported in 1989 at Koch Kumbu where it is believed to have originated from neighbouring Madi Anyirib in Arua district.

He noted that the disease might have been spread through paying dowry, grazing or drinking water, or by animals whose owners were running away with them for fear of the disease.

He reported that the disease despite vaccination, continued to persist in 1990 till a quarantine was imposed and the disease controlled following vaccination of heads of cattle in the affected areas.

## ZAIRE

### Cholera Outbreak in Shaba

EA1511110591 Kinshasa Voix du Zaire in French  
0500 GMT 14 Nov 91

[Excerpts] A cholera epidemic has reportedly erupted in Shaba. The victims are reportedly already numbered at hundreds of deaths. [passage omitted]

Shaba is a victim of cholera. The epidemic, if we are to believe a Medicins Sans Frontieres team, has already claimed victims in the region. The disease causes several hundred deaths.

### Measles, Diarrhoea Outbreak in South Kivu

EA2910134091 Kinshasa Voix du Zaire in French  
0500 GMT 28 Oct 91

[Excerpt] An epidemic of measles and diarrhoea is reported at Uvira, in the Ruzizi plain, in South Kivu, eastern Zaire. The basis of this deplorable health situation is the nonvaccination of children against child-killing diseases, and the consumption of poor quality water.

Meanwhile, there is talk about the resumption of work at the Lemera reference hospital near the Burundi border where the medical team which uses Swedish doctors was closed due to prevailing insecurity in that part of South Kivu. [Passage omitted]

## ZAMBIA

### Dysentery Outbreak in Kalomo District

92WE0079B Lusaka TIMES OF ZAMBIA in English  
16 Sep 91 p 3

[Text] The Ministry of Health in Southern Province has deployed three teams of health workers to combat the outbreak of dysentery in parts of Kalomo district.

The teams which moved in last week after the plight of the villagers was brought to light are encamped at Ngwezi fishing camp, Simalaa and Mambova areas.

Ngwezi fishing camp has four health workers attending to some of the villagers who complained of abdominal pains and passing stool with blood.

More than 70 patients were registered for treatment during the weekend at Ngwezi alone.

The health officers who declined to give details because they were not authorized said the situation was serious as the disease was now spreading to Sesheke in the Western Province.

Arrangements were being made to transfer some of the serious cases to Livingstone General Hospital.

Besides treating patients the health officers were offering advice to the villagers on how to prevent similar outbreaks.

The workers, all from livingstone, will remain in their camps until the situation improves.

Efforts to get a comment from provincial medical officer Dr. Jul Malikinya failed yesterday but provincial health inspector Mr. Wellman Sepete said the outbreak was serious and affected Sesheke district as well.

### Diarrhea Widespread in Livingstone

92WE0079A Lusaka TIMES OF ZAMBIA in English  
20 Sep 91 p 2

[Text] As diarrhea ravages the tourist capital Livingstone, all clinics, including the main general hospital have run out of anti-diarrhea drugs.

No clinics contacted yesterday did have any diarrhea drugs, apart from oral rehydration salts (ORS).

With such a gloomy picture in the background authorities at all the institutions confirmed a continued influx of patients complaining of diarrhea or what was suspected to be dysentery.

Residents complained that when they went to the hospital they only returned with sachets of ORS "which we can make ourselves at home from salt and sugar mixtures".

Authorities at the hospital and clinics attributed the shortage of drugs to the high demand because of increased cases.

Senior medical officer Dr. Joel Shonga said on Tuesday, the office of the provincial medical officer was waiting for a report from health inspectors who were investigating the extent of dysentery in Livingstone.

Dr. Shonga said the ministry of health embarked on the exercise to monitor the extent of dysentery.

Teams of health inspectors were dispatched to the camps last week.

**Northern Province Suffers Dysentery Outbreak**

*MB1211060491 Johannesburg SAPA in English  
1924 GMT 11 Nov 91*

[Text] Lusaka Nov 11 SAPA—Twenty-one more people have died in Zambia's northern province from an outbreak of dysentery during the past two weeks.

This brings the total since the epidemic broke out to 29, Health Minister Dr. Boniface Kawimbe announced on Monday.

He said the government would leave no stone unturned to fight the disease along with cholera.

Dr. Kawimbe said a team of experts would be sent to the province to tackle the epidemics.

Dr. Kawimbe said 1,300 cases of dysentery had been recorded so far, with 29 deaths, and attributed the high death toll to lack of water treatment chemicals.

He said although the chemicals, especially chlorine, were now available in both Mbala and Mpulungu, the problem was that even those who recovered still retained the bacteria in their bodies. Sewage problems had compounded the problem because flies continued to spread the bacteria.

Dr. Kawimbe said the sewage system in Mpulungu had broken down and the Ministry of Local Government was working towards sending "vacuum" trucks to clear the blocked system.

**Ndola District Cholera Outbreak Ended**

*92WE0050A Lusaka TIMES OF ZAMBIA in English  
7 Sep 91 p 1*

[Article by TIMES reporter: "Ndola Wins Cholera Battle"]

[Text] The cholera outbreak which haunted Ndola Urban district for the past two years has finally been brought under control and Bwafwano cholera centre in Chifubu, the one which had remained open to cholera patients yesterday closed down.

Ndola Urban district executive secretary Mr. Handros Mbewe said yesterday the last patients at Bwafwano centre had been discharged.

He said people suffering from any type of ailment would not be required to report to the normal established Government hospitals as there was no fear of infection.

Ndola Urban senior governor Cde. Levy Mbulo would on Sunday officially launch a clean-up campaign in which council employees especially those under the health department would be mobilised to demonstrate to residents how to keep the city clean and free of infectious diseases.

Council employees would clean and unblock drainages, remove garbage, clean roads, disinfect eyesores and educate residents about importance of keeping food and their surrounding clean.

He said now that the cholera outbreak had been contained the council would concentrate all its efforts and funds which it received from Government and well-wishers on preventive measures.

Mr. Mbewe thanked individuals, business houses and charitable organisations who helped the council with funds and drugs to combat the dreaded disease and assured them the money was put to good use.

**Cholera Outbreak Continuing in Mpulungu**

*92WE0079C Lusaka TIMES OF ZAMBIA in English  
17 Sep 91 p 2*

[Text] The cholera outbreak in Mpulungu where 16 people have since died has forced schools in the area not to reopen for the third term.

A TIMES team that visited the port learnt that pupils were not allowed to resume classes on September 9.

Villagers told the TIMES many more people had died. They parried claims by authorities that the spread of cholera had been contained.

They said scores of cholera victims were at treatment centers.

But a visit to the local health center showed that an emergency team to contain the scourge had been deployed in the area.

The team maintained that the situation was "regulated" but refused to disclose the quarantine area.

Mpulungu has for the last five years been a cradle of cholera outbreaks.

**Cholera Death Toll Reaches 321 in Two Provinces**

*MB3010084091 Johannesburg SAPA in English  
0700 GMT 30 Oct 91*

[Text] Lusaka Oct 30 SAPA—The cholera death toll in Zambia has reached 321 since the epidemic erupted six weeks ago. Ministry of Health permanent secretary, Dr. Evdriste Njelesani, said in a statement on Wednesday [30 October] that the death toll had jumped from 56 to 321 since the outbreak late last month in Northern and Luapula provinces in northern Zambia.

Dr. Njelesani said a total of 2,502 cholera cases have so far been recorded in the two provinces, where a special medical cholera team was battling to bring the epidemic under control. Dr. Njelesani said the situation had been exacerbated by the continued influx of people crossing from Zaire.

The medical chief has appealed to people to maintain very high standard of hygiene and advised to boil all drinking water.

#### **Cholera, Dysentery 'Biggest Killer Diseases'**

*MB1611133691 Johannesburg SAPA in English  
1306 GMT 16 Nov 91*

[Text] Lusaka Nov 16 SAPA—Cholera and dysentery are the biggest killer diseases in Zambia, that country's health minister, Dr. Boniface Kawimbe, said on Saturday in Lusaka.

He revealed that about 1,000 people have died of cholera, and 11,495 had come down with the water-borne gastric disease.

In Zambia's Northern Province alone, dysentery, the second biggest killer, had cost 553 lives and afflicted 2,785 people between July and October.

Both diseases—running rampant in the country at present—are caused by poor personal hygiene, Dr. Kawimbe said.

Providing adequate sanitation was the most effective way to control cholera and dysentery, rather than relying purely on medical remedies.

"It would be a futile exercise to treat patients whose surroundings were unhygienic and prone to these diseases," Dr. Kawimbe said.

#### **Farmers Urged To Fight Corridor Disease**

*92WE0050B Lusaka TIMES OF ZAMBIA in English  
1 Sep 91 p 9*

[Article by SUNDAY TIMES reporter: "Fight Disease, Farmers Told"]

[Text] Farmers should pool resources and seek Government help to sink boreholes and fight corridor disease which has claimed over 5,000 cattle in Namwala this year alone.

Permanent secretary in the Ministry of Water, Lands and Natural Resources, Mr. Namukolo Mukutu, said in an interview that the water problem the farmers were facing could be solved if the farmers built their own facilities on self-help basis to supplement Government efforts.

Mr. Mukutu blamed the lack of coordination between various water organisations as they were just too many.

"There is no central coordinating agency and there were few engineers to do the work," he said.

Mr. Mukutu said the ministry was aware of the problem of inadequate water supplies, unclean water and inconveniences caused to water users because of breakdowns of equipment. Everything possible was being done to find solutions to these problems.

"At the moment there is an ongoing workshop on water and sanitation improvement and institutions development which is bringing together donor agencies and various organisations nationwide."

The Ministry of Water, Lands and Natural Resources was now looking at the possibility of creating their own company to help solve the water problems.

He appealed to the Ministry of Decentralisation to take an active role into the formation of the company.

#### **ZIMBABWE**

#### **Over 65,000 in Mutare District Said Facing Starvation**

*MB0811081991 Johannesburg SAPA in English  
2326 GMT 7 Nov 91*

[Text] Mutare Nov 7 SAPA—More than 65,000 people in Zimbabwe's Mutare District face starvation due to the drought which has claimed the lives of many cattle and other livestock.

In addition, several boreholes and wells have dried up in the area, Mutare District Administrator Loveson Mtetwa said on Thursday.

"The situation is very pathetic. We have never had such a drought before. The most hit are people living in Marange South where the drying up of wells and boreholes has affected some schools in the area," Mtetwa told the ZIANA news agency.

He said the district needed 15,000 bags of maize each month but was receiving only 4,500 bags a month.

Of the 135,000 people in need of food relief in the district, 65,000 had been identified as deserving cases and were being allocated food accordingly.

#### **Health Official on Measles, Malnutrition-Related Diseases**

*MB2211082291 Johannesburg SAPA in English  
0419 GMT 22 Nov 91*

[Text] Mutare Nov 21 SAPA—Manicaland provincial medical health officer for communicable diseases control, Dr. Ruth Shakespear, on Thursday said measles and malnutrition-related diseases were on the increase in the province, the ZIANA news agency reports.

She said there had been a notable increase in these diseases over the past two weeks, with more than 100 cases of measles being reported each week in some district hospitals and clinics.

Dr. Shakespear said the measles epidemic was affecting children of primary school going age.

"Most of the children who are being affected by measles here were not immunised and have never suffered from the disease," she said.

She said 4,132 cases of malnutrition-related diseases in children had been registered at hospitals and clinics. Most of the children were suffering from chest infections and diarrhoea.

She was satisfied at the progress of the immunisation programme.

"Immunisation is ongoing at the present moment and we don't have any problems at all, people in the province are aware of the importance of immunisation and are quite cooperative," she said.

#### **Measles Outbreak in Odzi Resettlement Areas**

*92WE0080A Harare THE HERALD in English  
27 Sep 91 p 12*

[Text] Almost 30 children aged between six months and 10 years died of measles in Mutanda II resettlement scheme in Odzi during the last five weeks' officials in the area have said.

The deaths are said to have occurred in villages K1 and K2 where most people are members of the Apostolic Faith sect.

Cde. Junia Chirara, the Mutare district nursing officer, confirmed the measles outbreak in Mutanda II.

Following the outbreak, said Cde. Chirara, a vigorous immunization campaign was launched by rural health center staff with the help of the Zimbabwe Republic Police.

"We then sent out a campaign team tasked with carrying out door-to-door immunization, intensifying health and hygiene education in the area and controlling the situation through immunization."

The area was now under strict surveillance.

Cde. Chirara Said: "During the exercise, members of the Apostolic Faith did not show any noticeable resistance and we hope that there is going to be continuity in the acceptance so as to prevent further outbreaks."

#### **Official Says Over 3 Million Suffer From Bilharzia**

*MB0611160991 Johannesburg Radio RSA in English  
1500 GMT 6 Nov 91*

[Text] More than 3 million people in Zimbabwe suffer from bilharzia, and at least 10,000 of the victims die of the disease every year or are chronically afflicted.

A research expert, Dr. Stephen Chandiwana, said the number of bilharzia cases was rising because of an increase in the number of irrigation schemes and the building of more dams to boost agricultural productivity.

The disease is spread by freshwater snails, which are hosts to the bilharzia parasite during parts of its life cycle.

#### **Tsetse Eradication Program Succeeding**

*92WE0080C Harare THE HERALD in English*

*11 Sep 91 p 3*

[Text] More than half of Zimbabwean land infected by the tsetse fly has been cleared, the Minister of Lands, Agriculture and Rural Resettlement, Cde. Witness Mangwende, told Parliament yesterday.

In his contribution to the debate on the Presidential address, he said that the tsetse eradication programme had been successful. However, it would not be possible to achieve total eradication because of reinvasion from neighboring Zambia and Mozambique.

It is important to note that ... 48,000 square kilometers have been cleared and only 25,000 square kilometers are still infested."

The Animal Health Act had increased fines for unauthorized stock movement to \$4,000 to deter haphazard settlement in the Zambezi Valley and illegal movement of livestock and people.

Although the Agricultural Finance Corporation was not making profits because farmers did not pay back on time, it would finance the sinking of boreholes for irrigation schemes, he said.

#### **Beef Exports to EC Suspended Due to Disease Outbreak**

*MB0511190791 Johannesburg Radio RSA in English  
1500 GMT 5 Nov 91*

[Text] Zimbabwe has suspended all exports of beef and dairy products to the European Community [EC] following an outbreak of foot-and-mouth disease at a farm north of the capital, Harare. Zimbabwe's director of Veterinary Services, Mr. Stuart Hargreaves, said the suspension would remain in effect until the extent of the spread of the disease has been ascertained.

The chairman of the Cattle Producers' Association, Mr. Graham Franby, said the outbreak of foot-and-mouth disease was a big blow to the industry, which was beginning to benefit from exports to the EC.

#### **Lost Income Due to Suspension of Beef Exports to EC Viewed**

*MB0611100391 Johannesburg SAPA in English  
2308 GMT 5 Nov 91*

[Text] Harare Nov 5 SAPA—Zimbabwe stands to lose about ZD[Zimbabwe dollars]120 million annually in foreign currency from the suspension on Monday of all exports of beef and dairy products following the fresh outbreak of contagious foot-and-mouth disease in Mvurwi, the ZIANA news agency reports.

"After resuming trade with the EC (European Community) last year, we were earning plus or minus ZD18000 per ton and we were supplying about 600 tons of beef per month to those countries," Cattle Producers' Association Chairman Graham Franceys said.

He said it would take up to three months to determine whether the disease was under control in Mvurwi, a rich EC catchment area. In the meantime, his association would look for other export markets while the disease was being brought under control.

"If we can't sell to the EC we will try and see if we can establish other markets, while the situation is being corrected," he said.

The outbreak, the 76th primary outbreak since 1931, is a major blow to Zimbabwe's efforts to re-establish itself and fulfil its export quota of 9100 tons to the EC following the lifting of the 1989 ban on exports when it experienced its worst outbreak in 20 years.

That ban cost Zimbabwe more than ZD100 million worth of exports.

The director of veterinary services, Dr. Stuart Hargreaves, said his department was "depopulating" cattle from the farm where the disease had occurred to vaccination zones.

#### Parasites Infect Kariba Fish Population

92WE0080B Harare THE HERALD in English  
25 Sep 91 p 4

[Text] A large number of fish in Lake Kariba are now infected with parasites and may be harmful if eaten raw.

According to a recent study on breams and kapenta fish carried by the University of Zimbabwe's Lake Kariba Research Station, most of the bream and 93 percent kapenta were infected with trematote parasite, which affected the gills.

Speaking during the tour of display stands at the station's open day at the weekend, the director, Professor Chris Magadza, said the study was the first major work to be undertaken in Southern Africa.

The leader of the research study, Dr. Laurence Deuollov, said the parasites were causing diseases that affected the fish's respiratory system, and also cancer. Eventually the fish die, but if they get well cooked, they would be harmless.

### A Study on the Mechanism of Multiresistant *Salmonella Typhi*

*40091001B Beijing ZHONGHUA YIXUE ZAZHI [NATIONAL MEDICAL JOURNAL OF CHINA] in Chinese Vol 71 No 6, Jun 91 pp 314-317, 364*

[English abstract of article by Zhang Ling [1728 7227], Liu Chenyi [0491 7115 6146], et al., Antibiotics Institute of Huashan Hospital, Shanghai Medical University]

[Text] From November 1988 to June 1989, 142 strains of *S. typhi* were isolated from patients of typhoid fever in Qingpu County, Shanghai. These strains were highly sensitive to ceftazidime, ceftriaxone, ofloxacin and enoxacin, the sensitive rates to chloramphenicol, co-trimoxazole and ampicillin being from 67 percent to 83 percent. Of these 142 strains, 22 were multiresistant strains, being resistant to chloramphenicol, co-trimoxazole, ampicillin, cefazolin, gentamicin, piperacillin and tetracycline.

Beta-lactamase production was the possible mechanism of resistance of *S. typhi* to beta-lactam antibiotics. Plasmid analysis by agarose gel electrophoresis showed that a plasmid band of 98Md was found in all multiresistant strains as well as the conjugants, while in sensitive strains, no plasmid band was found. The 98Md large plasmid seemed to be closely related to the multiresistance of *S. typhi*.

Phage typing of *S. typhi* strains in Qingpu area revealed that M1 was the most prevalent type and A, E1, D2 etc. followed in order of frequency. M1 type seemed to be closely related to the resistance to chloramphenicol, co-trimoxazole and ampicillin.

### Epidemic Disease Death Toll Declines

*54004803 Beijing CHINA DAILY (National) in English 17 Oct 91 p 3*

[Article by Zhu Baoxia]

[Text] The number of deaths from epidemic diseases declined in the first eight months of this year compared to last year's figures, despite the rise in disease cases reported in flood-hit areas in July and August, according to the Ministry of Public Health.

A total of 4,683 people had died from epidemic diseases by August this year, a drop of 33.5 percent over the same period last year.

By the end of August, 1,897,943 epidemic disease cases had been reported across the country, six percent more than the same period last year, most of which were intestinal illnesses such as diarrhoea.

In Fengyang County, Anhui Province, where over one-third of the villages and fields were flooded, the incidence rate of hepatitis, encephalitis and malaria dropped dramatically thanks to the immediate anti-epidemic measures taken.

The county saw an increase of dysentery in July and early August, yet the situation is now under control and improving.

The national disaster relief and disease control leading group attributed these achievements to the joint efforts of the government and the people.

The State Council had earlier set up a national disaster relief and disease control group headed by State councilor Li Tieying, to guide and co-ordinate different State departments.

Local governments in 22 provinces, municipalities and autonomous regions also formed special offices for the work and mapped out specific strategies.

About five to ten percent of the funds for disaster-relief to the eight severely affected provinces, given by the governments and collected through mass donations, were spent on disease control.

By mid-September, 10,385 medical teams involving 90,182 personnel had been sent to the disaster-struck areas by the Ministry of Public Health and provincial governments.

Anhui alone sent out 2,663 medical teams, comprising some 36,000 health workers and officials. Anti-epidemic drugs, valued at 26 million yuan (\$5 million) were distributed to flood victims.

Both central and local medical and health care networks and medical teams at different levels have played key roles in the work. Apart from medical treatment, they also took charge of epidemic surveillance and reporting, health publicity and epidemic control.

In areas where an intact three-tiered health and medical care network was maintained, few cases of and deaths from epidemic diseases were reported.

A week-long national health campaign was launched last month to improve environmental sanitation. Some 1,860 temporary toilets have been built in the flood-hit areas in Anhui, and 532,500 wells have been cleared and sterilized. The province has also built 11,470 hand-pumped wells to provide drinking water for the locals.

Drugs were also sprayed over 96 million square metres of land to help wipe out rats.

In Jiangsu, more than 55,000 people were mobilized on the first day of the health week to clear away 1,500 tons of rubbish.

### Epidemic Prevention Groups Leave Anhui

*0W3010085891 Beijing XINHUA in English 0759 GMT 30 Oct 91*

[Text] Hefei, October 30 (XINHUA)—East China's Anhui Province held a farewell meeting Monday to send off the last group of epidemic disease prevention workers sent by the Ministry of Public Health.

This summer Anhui was hit by the biggest floods in a century. To help prevent epidemic diseases in the flooded areas, the Ministries of Public Health and Railways, and the People's Liberation Army sent 117 groups of some 1,000 medical workers to the province. These medical workers worked closely with local medical and health organizations and ensured that there was no outbreak of epidemic diseases.

**Nationwide Innoculation Against Hepatitis B**

*OW021112691 Beijing XINHUA in English  
1045 GMT 2 Nov 91*

[Text] Changsha, November 2 (XINHUA)—Representatives from around the country gathered here from October 29 to 31 to attend a meeting convened by the Ministry of Public Health to prepare for nationwide vaccinations against hepatitis B next year.

As one of the countries with a high incidence of hepatitis, China has more than 600 million people infected with

hepatitis B, and some 120 million people are carriers of it. About 300,000 people die of hepatitis annually across the country.

What's more serious is that about 40 percent of pregnant women infected by hepatitis B pass the virus on to their babies. And the infected babies grow up to become victims of cirrhosis and primary liver cancer.

Addressing the meeting, Chen Minzhang, minister of public health, pointed out that if from now on all newborn babies in China are immunized against hepatitis B China will be able to gradually control the spread of the disease in two or three generations.

In 1986 the Ministry of Public Health started to prepare for nationwide immunization against hepatitis B. After tests in some provinces and municipalities the ministry outlined a plan to carry out nationwide immunizations.

According to the plan, the immunization will be first carried out on newborn children and children aged under seven in cities and towns, then it will spread to the countryside.

## CAMBODIA

### Spread of Malaria in Stung Treng

*BK1011063091 Phnom Penh SPK in English  
0413 GMT 10 Nov 91*

[Text] Phnom Penh SPK November 10—Malaria has spread in the northeastern province of Stung Treng, causing six deaths and affecting more than 600 others, said an official of the provincial health care service.

The disease has stricken the provincial town and Siem Bok District after the flood in August receded, he said.

Floods created favourable conditions for mosquitoes to multiply, he added.

However, he said, thanks to the local medical staff's efforts in giving vaccination and medical treatment and the people's observance of clean living conditions, the diseases' incidence has been kept under control.

### Malaria Spreads in Third Quarter of 1991

*BK1011123191 Phnom Penh SPK in French 1107 GMT  
10 Nov 91*

[Text] Phnom Penh 10 Nov (SPK)—During the third quarter of the year, the number of people affected by malaria in Kompong Thom, Stung Treng, and Kompong Speu Provinces has increased compared with the same period last year.

The hospital in Kompong Thom Province, situated in the center of the country, received more than 4,000 malaria sufferers or 13 percent more than last year.

In the northwestern mountainous province of Stung Treng, the provincial town and the district seat of Siem Bok recorded more than 600 malaria-stricken victims, including six deaths.

Malaria attacked almost a thousand people in Kompong Speu Province, about 100 km west of Phnom Penh. In Phnum Sruoch District alone, there were some 5,000 patients, including 49 deaths.

The campaign against malaria, which spreads generally in mountainous regions, was launched to assist the population in taking necessary preventive measures. Yet, the problem now is the shortage of medicine.

### Infant Morbidity Rates Nationwide

*BK0211081891 Phnom Penh SPK in English  
0415 GMT 2 Nov 91*

[Text] Phnom Penh SPK November 2—The infant morbidity rates in Cambodia have gradually decreased every year thanks to the constant efforts of the anti-epidemic services at all levels.

A number of diseases, which prevailed especially in the northwestern provinces last year, have dropped so far. In the past nine months, the outbreak of cholera in

Kompong Thom killed 83 of the 600 affected children. Dengue, which affected 513 children in Phnom Penh, 196 in Kompong Cham Province and 107 others in Kompong Chhnang Province, left a death toll of 28. And only five of the 239 children affected by measles in Stung Treng Province died from the disease, but none among nearly 500 children who contracted diphtheria in Phnom Penh succumbed to the disease.

In the period under review, the anti-epidemic centre in Phnom Penh gave vaccination shots to 259,100 children of the 335,500 born in 1991, against the six major child-killers.

The centre attributed the success to the close cooperation of all services at the grass-roots level, especially the sending of health workers to treat sick children on the spot in remote rural areas. Besides, the itinerant teams went to different localities to talk with the local inhabitants about hygienic and prophylactic measures, the three-clean movement (clean water, clean food and clean living).

Meanwhile, the potable-drinking water service under the centre sank nearly 800 water-wells in different provinces.

### Morbidity, Mortality Rates in Kompong Thom Increase

*BK0711065291 Phnom Penh SPK in English  
0437 GMT 7 Nov 91*

[Text] Phnom Penh SPK November 7—The morbidity and mortality rates of dengue fever in Kompong Thom Province, 150 km north of Phnom Penh, have increased twofold compared with the same period last year from May to November, the provincial health care centre said.

Since May, 183 children have been affected by the disease and 18 of them have died.

The morbidity rate of malaria has also risen with about 4,100 people being infected with the disease, according to the centre.

The figure was 32 percent of malaria suspects of 12,760 people in the first nine months of the year. The rate increased by 13 percent compared with the same period last year, it said.

O Tai-chhin, the centre director, said dengue and malaria have badly affected the province since the early rainy season which is favourable for the procreation of mosquitoes.

In the last dry season, 85 people died of cholera and nearly 1,000 others were affected by the disease, according to the director.

## FIJI

### Islanders Suffering From Chronic Infectious Diseases

*BK3110102791 Hong Kong AFP in English 0931 GMT 31 Oct 91*

[Text] Suva, Oct 31 (AFP)—A Fiji government report warned Thursday of "a health catastrophe" on a north coast island where infectious diseases are responsible for 50 percent of deaths.

It blames poor sanitation, improper sewage disposal and frequent flooding for killer diseases on Rabi Island, home to 4,000 people, many of whom are former inhabitants of the old British colony of Gilbert and Ellice islands now Kiribati and Tuvalu.

The report said Rabi was rife with diseases like typhoid, hepatitis and tuberculosis.

"It is a health catastrophe with the average age of deaths from all diseases placed at 35-36 years last year," said the report prepared by doctor Bijend Ram.

Rabi accounts for all deaths from pneumonia and meningitis on Fiji's north coast sugar and copra-growing islands.

Ram said Rabi accounts for 80 percent of deaths from hepatitis and 50 percent of all deaths from septicaemia (blood poisoning) on the north coast.

Salik Govind, a doctor and director of disease control, said "things would be brought under control."

He said unhygienic living standards and poor and erratic water supply was also causing the killer disease hepatitis B in other parts of Fiji.

The report comes two weeks after another study found that Fiji's major killer was diabetes, causing 12 percent of deaths.

## SOUTH KOREA

### Health Ministry Issues Warning Against Influenza

*SK2711004691 Seoul THE KOREA TIMES in English 27 Nov 91 p 3*

[Text] The Health-Social Affairs Ministry yesterday issued a warning against influenza, a contagious respiratory infection, across the country.

The epidemic is feared to be spreading to residents because serious outbreaks of influenza were reported about one month earlier than normal in the United States and other countries.

The influenza, commonly called "Beijing type A," was first discovered in Beijing in 1989 and the same virus was also found in the country last spring.

Influenza begins suddenly with fever, headache and muscular pains but people infected with the virus are likely to develop complications such as pneumonia and bronchitis.

The epidemic reportedly swept about 10 states in the United States, causing about 1,000 schools to temporarily close their doors.

## LAOS

### Malaria, Diarrhea Spreading in Siangkho District

*BK0111124891 Vientiane Vithayou Hengsat Radio Network in Lao 0000 GMT 1 Nov 91*

[Text] A source in the Public Health Service of Siangkho District in Houa Phan Province reported that malaria, influenza, and diarrhea has broken out in several villages of the district in October. Seven hundred and thirty-nine people have so far been afflicted with the diseases and seven have died. Medical cadres have provided treatment to people expeditiously and have taken action to prevent further spread of the diseases.

### More Malaria Cases in Laman District

*BK0211142291 Vientiane Vithayou Hengsat Radio Network in Lao 1200 GMT 2 Nov 91*

[Text] The public health service of Laman District of Sekong Province reported that malaria cases in the district highly increased during this year's rainy season. Approximately 60.24 percent of the population are inflicted with the disease. The initial study revealed that 50 out of 80 people who came for blood tests have contacted malaria. The district's public health service is now propagating the rule of hygiene among the local people and distributing medicine for prevention of the disease. The report attributed the outbreak of malaria to unhygienic practices such as drinking unboiled water and refusing to sleep inside a mosquito net.

### Malaria Epidemic in Saravane Province

*BK0411143791 Vientiane Vithayou Hengsat Radio Network in Lao 1200 GMT 4 Nov 91*

[Text] According to a report from the malaria eradication station in Saravane Province, since October this year, a malaria epidemic has occurred in Nong Pa canton, Lao Ngam District, Saravane Province. So far, 14 persons, mostly children and old people, have died of this disease. The epidemic has been caused by negligence on the part of people in observing hygienic measures, such as by failing to use mosquito nets while sleeping and to drink clean drinking water. In the face of this situation, the provincial health service has urgently sent a number of public health cadres to treat persons afflicted with the disease. At present, the danger of this epidemic is apparently decreasing.

The report also said that in the meantime, the provincial health service has also sent medical cadres to fight malaria in some localities in Khong Sedon and Vapi Districts. Blood tests have been performed on more than 400 persons and 27 of them have been found to be carrying malaria virus.

### Malaria Epidemic in Bolikhamsai

*BK1311054491 Vientiane Vitthayou Hengsat Radio Network in Lao 1200 GMT 9 Nov 91*

[Text] Blood tests for the malaria virus have been performed in Bolikhan District, Bolikhamsai Province. The results show that 18.38 percent of the 2,697 people tested have been afflicted with malaria. More people in this district are expected to be afflicted with this virus if the blood testing continues.

The provincial public health service has provided Bolikhan district with many facilities. For example, in 1991 it supplied various localities in this district with medicine and medical equipment worth more than one million kips.

### Eight Die of Malaria in Saravane

*BK2311095291 Vientiane KPL in English 0902 GMT 23 Nov 91*

[Text] Vientiane, November 23 (KPL)—Eight people out of the 45 malaria-affected in Vapi District of Saravane Province died last month.

Besides malaria, dysentery and diarrhea were during the same period reported to have occurred in Pa Ai, Nong Kae and Khonesai villages of the district.

The provincial service of public health was immediately sending health workers to the areas. Hence, the outbreak of the diseases was curbed.

## PAPUA NEW GUINEA

### 'Thousands' Dying in Bougainville From Medical Shortages

*BK2411073891 Hong Kong AFP in English 0650 GMT 24 Nov 91*

[Text] Wellington, Nov 24 (AFP)—Papua New Guinea troops have stopped medical supplies reaching the secessionist island of Bougainville and thousands are dying, according to a report broadcast here Sunday night.

Mark Scott, a New Zealand freelance reporter who recently visited the island, said there was a drastic shortage of medicines.

"Human suffering is being inflicted on a scale the Pacific has not seen since World War II," he said.

"The Papua New Guinea Army has cut vital medical supplies. More than 3,000 people have died this year."

Scott's report was broadcast by Television New Zealand on its Frontline current affairs programme.

TV footage shot by Scott included an interview with a Bougainville nurse, Ruby Mininka. "We can't go on like this. We desperately need help," she said.

Scott's said Red Cross medical supplies had been destroyed or confiscated and malaria and birth-related deaths were claiming the majority of the victims.

Mininka said people were not coming to the hospitals because they knew there were no drugs there.

"They are dying in the villages," she said. "This area has a severe malaria problem. I hope someone has some sympathy."

Scott said he had offered his own supply of anti-malaria tablets so that a dying boy could be treated. Medical authorities refused to accept them, saying he faced a severe risk himself if he gave up the medication.

Bougainville is seeking independence from Papua New Guinea and has been embroiled in a guerrilla war for the last three years.

## THAILAND

### Doctor Discusses Dengue Fever in Udon

*92WE0025A Bangkok DAO SIAM in Thai 14 Sep 91 pp 11, 13*

[Text] There is a serious outbreak of dengue fever in Udon Thani. Seven children have died from this disease already. According to the statistics for this year up until now 1,299 people have contracted this disease, most of them in August. There are about twice as many people suffering from it as there were last year.

Dr. Amphan Minakanit, the director of the Udon Thani Medical Center said that there were almost 100 patients being treated for dengue fever at this provincial hospital. As a result she had to mobilize many more doctors, nurses, and beds. Since the beginning of the year reports indicated that 526 patients had been treated for this disease at the Udon Thani Medical Center, and 873 patients had been treated at various district hospitals. These were alarming figures. In August alone there were 244 people who contracted this disease. In comparison, during this period last year there were only 100.

As for children there have been seven who have died of the disease. Of these five died at the Udon Thani Medical Center. All these patients came to the hospital from various districts in very weak condition.

Dr. Thanathip Phanthipphaet, the head of the team for treating children's diseases at the Udon Thani Medical Center, said that children were most at risk for dengue fever when they were from two to 14 years. She said that in Udon Thani most of the children contracting the

disease were from two to five years. The initial symptoms included a sudden fever, lack of appetite and vomiting for two to three days. The fever then continued and the body became covered with small marks like bug bites or blotches. There was a danger that the person providing care might not know that using aspirin to reduce the fever could induce shock and low blood pressure with bleeding from the skin and vomiting of blood. During this period there would be a risk of death, but if the patient survived, he would recover quickly.

## VIETNAM

### Malaria Kills 54 in Son La Province

*BK1411073591 Hanoi Voice of Vietnam Network  
in Vietnamese 1430 GMT 10 Nov 91*

[Text] Following the June and July 1991 flash floods, malaria infection has increased in many villages and hamlets along the Da River as well as in remote high-level areas. According to statistics released by the province, 54 people have died of malaria since February.

The Son La provincial public healthcare service has joined hands with localities in accelerating the malaria eradication campaign. Local epidemic prevention teams have sprayed 12 tonnes of anti-malaria substances, soaked 7,900 nets with mosquito repellent, and have given medical care and treatment to 126,000 people.

The province is continuing to deploy manpower, material resources, and drugs to malaria-affected areas to give medical care and treatment to patients.

### Nghe An—600 Die of Malaria

*BK2111140391 Hanoi Vietnam Television Network  
in Vietnamese 1200 GMT 15 Nov 91*

[Text] Since 1980, due to socioeconomic upheavals, the number of gold and precious gem miners in the mountain regions has increased with every passing day. Tens of thousands of people have emigrated to the Western Highlands and the Nam Bo Delta provinces to make a living and have been affected by the serious development of malaria.

The village public health care networks have deteriorated. Meanwhile, allotments for disease prevention and treatment have been limited. As a result, malaria has recurred in many northern regions, especially in the mountain provinces.

Noteworthy is the fact that of late, malaria has developed quite seriously in Nghe An. As of September, the number of people who died from malaria in Ky Son, Son Duong, Nghia Dan, Que Phong, Quynh Hop, and other mountain districts in Nghe An has reached 600.

Faced with that situation, the sanitation promotion and epidemics prevention and control services of the Nghe An provincial public healthcare sector have assigned medical cadres to villages and hamlets to help contain the spread of malaria and to give treatment.

In addition to the malaria control and prevention campaign, the province has also maintained the rate of inoculations for children under one year old at more than 80 percent. Altogether, the province has organized eight inoculation drives to help protect children from the six dangerous contagious diseases.

To reach the goal of inoculating 85-95 percent of the children, the province has established an inoculation program steering committee from the district down to the village and city ward levels. The committee has flexibly applied two modes of immunization through periodic and unexpected inoculations.

**YUGOSLAVIA**

**State of 'Hydric Epidemic' Proclaimed in Stip**  
*LD0411052591 Belgrade TANJUG Domestic Service  
in Serbo-Croatian 0153 GMT 3 Nov 91*

[Excerpt] Stip, 3 Nov (TANJUG)—The epidemic service of the Health Welfare Institute in Stip has proclaimed a state of hydric epidemic, because since 24 October over

300 cases of gastric upsets and diarrhea have been registered. [Passage omitted: medical explanation] Because of fecal pollution of the water, the health inspectorate repeated its instructions first issued three and a half years ago that water from private water wells should not be used for drinking or for domestic purposes. The Health Welfare Institute in Stip has taken all steps to stop the epidemic from spreading and to protect the population from contracting the illness.

## REGIONAL AFFAIRS

### Caricom Measles Control Program Evaluated

FL2111180191 Bridgetown CANA in English  
1515 GMT 21 Nov 91

[Text] Kingston, Jamaica, Nov 21, CANA—The Expanded Programme of Immunization (EPI) for the elimination of measles in 19 Caribbean countries is expected to cost 10 million U.S. dollars next year, according to an official of the Pan American Health Organisation (PAHO). PAHO regional adviser, Dr. Ciro de Quadros, said 8.5 million dollars was already available from national budgets, leaving 1.5 million dollars to be supplied by donor agencies. He was confident the outstanding funds would be forthcoming because of the success of the immunization programme so far.

Countries involved are the 13 states of the Caribbean Community (Caricom) along with Guadeloupe, Martinique, the Netherland Antilles, and Suriname. The information was given here last week at the eighth sub-regional EPI managers meeting. Statistics given at the conference showed several Eastern Caribbean states had achieved close to 100 percent immunization against measles in the under-15 age group.

Montserrat was said to have achieved 99 percent coverage; Antigua, 98.7 percent; St. Vincent and the Grenadines, and Grenada, 97 percent; St. Lucia, Barbados, Guyana, and Trinidad and Tobago, all in excess of 90 percent. Jamaica, the British Virgin Islands, and the Cayman Islands have managed just over 80 percent.

Sixty epidemiologists, EPI managers, and other health personnel and representatives from international agencies participated in the five-day meeting. The agenda covered measles surveillance and the role of non-governmental organisations, national work plans for 1992, the continuation of the programme through 1995, and a review of the Caricom measles eradication programme earlier this year.

## COLOMBIA

### Cholera Update Given for Antioquia Department

92WE0063A Santa Fe de Bogota EL ESPECTADOR  
in Spanish 19 Oct 91 p 2B

[Text]

#### Cholera Deaths in Antioquia Rise to 10

Santa Fe de Bogota—The cholera-caused death yesterday of a fisherman in the municipality of Puerto Berrio brings to 10 the number of people who have died of this disease in the department of Antioquia.

The 40-year old victim, identified as Angel Emilio Hinstrosa Aguilar, died at the medical center in the district of Murillo in this municipality in the Magdalena Medio.

The health authorities of Puerto Berrio went to the village to check whether others were suffering from the disease and to take the necessary measures to prevent further deaths.

Officials with the Sectional Health Service of Antioquia reported that 417 cases of cholera have been confirmed in the department, 320 of them in the municipality of Turbo in the Uraba region.

In recent days there have been worrisome reports that the disease is spreading in the mining municipality of Bagre and in the villages on the banks of the Tigui River, an area in northeast Antioquia in which the local authorities have declared an emergency.

As for the Cauca, the disease has subsided since it began raining two weeks ago.

During the recent dry season there were close to 200 cases in the Cauca, an average of three a day. Forty-six persons in all have died since the cholera outbreak in March of this year.

The death toll in the Choco is 51, and in Narino, where the disease also spread during the dry season, the Health Ministry's figure is eight dead, whereas local physicians say that more than 40 have died. Valle is the department with the lowest death toll, 12 in all.

Although the crisis brought on by the cholera onslaught seems to be behind us, the problem of medical understaffing at hospitals along the Cauca coast continues to affect huge numbers of persons in this traditionally ill-fated area.

A short while ago the Cauca coast had a very rough time with its cholera attack, as a great many people died of the disease near Guapi, and there were still cases until just two weeks ago.

Nevertheless, the scant medical personnel in the Timbiquí, Lopez de Micay, and Guapi zone managed to overcome the emergency thanks to the assistance from paramedical staff that the Sectional Health Service ordered. The staff had to return, however, as soon as the first wave of infection was over, and the zone remained on red alert until just recently owing to the harsh dry season that the region has had.

"Because of the dry season," the physician director of the Guapi hospital, Luis Gover Diuza, says, "the cases multiplied again. Since there was no rainwater the people drank from the river, which prompted the renewed outbreak. We had to cope with this new emergency without the four physicians for whom we have had openings, which have gone unfilled since the emergency began. In other words, we have been understaffed. We had reinforcements, it is true, but not permanent ones."

**Cholera Cases Rise in Atlantico Department**

*92WE0063B Santa Fe de Bogota EL ESPECTADOR  
in Spanish 20 Oct 91 p 14A*

[Text]

**Cholera Spreads to Caribbean Coast**

Barranquilla—While 23 cases of cholera have been confirmed in Atlantico Department, another 50 are being studied in the laboratory at the University Hospital of Barranquilla and at INAS [expansion not given].

With the disease spreading, Governor Arnold Gomez set up a standing committee to combat cholera that will provide pharmaceuticals to health-care clinics in the region.

The director of the Atlantico Health Service, Joachim Hann, said that stricken individuals are out of danger because they have been attended to in time. He also reminded the mayors of coastal municipalities to take appropriate measures in controlling the quality of drinking water and treating sewage.

His recommendation is part of a series of measures that must be taken to prevent cholera from spreading in the towns that obtain their water from the Magdalena River, from lagoons, or from deep wells whose water is untreated for human consumption.

**Health Emergency**

The local emergency committee also recommended that the mayor of Barranquilla, Miguel Bolivar Acuna, declare a health emergency in the city so that administrative procedures could be streamlined, thus providing the health clinics the tools they need to cope with the emergency and control the virus.

In Barranquilla the management of Municipal Public Enterprises issued instructions to the chemicals department of the water company to keep enough chlorine in stock to control the turbidity of water from the Magdalena River.

It was also emphasized that people should be more careful because the local water supply is not the best, the reasons for this ranging from the inadequacy of the workers to poor-quality inputs.

The health care chief asked mayors to shake things up at the water companies by taking immediate, vigorous action to correct irregularities.

**Stability in the Cauca**

Cauca health authorities reported that the cholera epidemic in the department has stabilized, mainly in the areas considered high risk, such as the municipalities along the Pacific coast: Lopez de Micay, Timbiqui, and Guapi, and the northern section of the department, in Puerto Tejada.

The chairman of the Regional Emergency Committee, German Callejas, announced this, indicating that the epidemic has stabilized thanks to the effective medical inspections and the heightened consciousness-raising and educational campaigns that have been conducted among residents of the most threatened areas.

The physician at Santa Barbara Hospital in Timbiqui, Humberto Ortiz, said that thanks to the medical inspections that have been conducted, with the aid of the Sectional Health Committee, all along the Pacific coast of the Cauca in recent days, the incidence of the disease has declined strikingly.

"There have been sporadic cases in recent days, not as many as during the epidemic, but some, three a week at times, in remote regions that do not have health-care facilities. The patients arrive with symptoms and are given medicine. With our meager medical personnel we have also visited rural areas and left behind medicine and recommendations."

**Over 100 Vergara Battalion Soldiers Contract Cholera**

*PA2611224991 Santa Fe de Bogota Inravision  
Television Cadena 1 in Spanish 0000 GMT 26 Nov 91*

[Report by Jorge Cura]

[Text] More than 100 Vergara Battalion soldiers stationed near Barranquilla have caught cholera. On 25 November the health authorities in Atlantico Department asked the Defense Ministry, which was planning to send the soldiers to barracks in different parts of the country, to keep them in Barranquilla until they are cured.

A total of 121 cases of cholera were officially confirmed in the Vergara y Velasco Battalion stationed in Malambo Municipality, only 10 minutes from downtown Barranquilla. Other unconfirmed cases in Guajira and Cesar Departments could increase that figure.

Atlantico Department health authorities said that sanitary procedures that would prevent cholera are not observed by the battalion. Health conditions regarding the feeding and housing of soldiers are inappropriate. In addition, the personal habits of the adversely affected individuals are not sanitary, either. They defecate outside and bathe and wash their clothes in a nearby lake. Food preparation practices on the base are extremely poor.

In addition, the battalion is very close to the Mesolandia Swamp, where the stagnant water can easily spread the disease; the soldiers bathe in this water. Even worse, they use the swamp water to prepare their food.

CUBA

**Health Organizations Praise Cuban Achievements**

*FL0511214591 Havana Tele Rebelde and Cuba Vision Networks in Spanish 0100 GMT 5 Nov 91*

[Text] A four-day evaluation meeting of the World Health Organization [WHO] and the Pan American Health Organization [PAHO] has ended in Havana. Representatives of WHO and PAHO hold periodic meetings to evaluate the work being done by the member countries. The representatives of the two organizations believe that this meeting that just ended in Cuba has been the best so far.

The WHO and PAHO representatives had the opportunity to observe the clear goals and priorities of Cuba's public health sector and the maximum use given to the funds allotted to Cuba. WHO and PAHO representatives have suggested that Cuba be included in a new computerized accounting and financial system which is already being used by several countries. The system was recently used in Peru during the cholera epidemic, and it proved to be very effective. The system allows for a rapid exchange of information between the countries and the two organizations to determine financial and, in general, health needs.

WHO and PAHO have endorsed full support for the research, production, promotion, and marketing of the health technology produced by Cuba. They have also recommended backing for Cuba's biomedical research. All of the WHO and PAHO representatives who visited Cuba have agreed to present these proposals before the general directorate in Washington immediately.

**Pan American World Health Inaugurates New Offices**

*FL0511220191 Havana Radio Reloj Network in Spanish 1602 GMT 5 Nov 91*

[Text] Vice Minister of Health Julio Tejas has said the Pan American Health Organization [PAHO] will support several Cuban technical health processes. During the inauguration of the new headquarters of the World Health Organization and PAHO in Havana, Tejas also said that these institutions will give special attention to international negotiations, thus providing Cuba access to special unbudgeted accounts.

The site chosen as headquarters for these organizations is an old house on Fourth Street between 17 and 19 [not further specified] in EL Vedado. This house was completely renovated by members of the city historian's office and the center of restoration [words indistinct].

PAHO representative in Cuba, Miguel Marquez, thanked the Cuban Government for giving them this building as the permanent site for their offices.

GUATEMALA

**Dengue Epidemic Hits Baja Verapaz**

*92WE0099A Guatemala City SIGLO VEINTIUNO in Spanish 27 Sep 91 p 4*

[Text] At least 40 or 50 percent of the population of Salama, Baja Verapaz, is or has been suffering from dengue, with a similar situation reported in the rest of the municipalities. This announcement was made yesterday by Deputy Bernardo Juarez, the Baja Verapaz representative in Congress.

The congressman remarked that the most disturbing aspect is that the Public Health Ministry has not concerned itself with this situation, because its efforts are concentrated on curbing the cholera epidemic. He admitted that this is important, but that other problems should not be neglected.

Bernardo Juarez added that the Health Ministry's area headquarters in Baja Veracruz has statistical data confirming the critical situation besetting the Baja Verapaz population, because dengue is afflicting children, adolescents, and adults alike. He stressed that dengue is certainly causing devastation in all of the country's communities, including the capital's marginal areas, and not just Baja Verapaz.

The congressman noted that he will bring up this problem before the Health Ministry committee, to find out whether a meeting with the pertinent minister is possible. His aim is to urge the latter to investigate the situation on the national level, and to attack dengue directly.

In conclusion, Deputy Juarez remarked that, in the case of Baja Verapaz, the malaria services have no resources nor equipment, nor even any transportation for attacking the insect transmitting dengue.

**Minister Denies Reporting False Cholera Data**

*92WE0052A Guatemala City DIARIO DE CENTRO AMERICA in Spanish 3 Oct 91 p 8*

[Text] "To date, 240 cases of cholera have been reported in Guatemala. Of these, five have resulted in death, with two of them confirmed by laboratory tests, and three by suspicion. This shows that the epidemic has remained stable, thanks to the actions of and coordination by the bodies responsible for overseeing health, and the cooperation of the citizenry," stated Minister of Public Health Miguel Angel Montepeque Contreras.

Minister Montepeque, accompanied by Vice Ministers Rodolfo MacDonald Kanter and Telma Duarte de Morales, held a press conference in the banquet hall of the National Palace yesterday. During the press conference, they reported on the development of cholera in Guatemala observed in the last eight weeks of the

epidemic which has plagued our national territory, which they compared with how the disease developed in Peru.

By way of introduction, the minister said that in the last four years, diarrheic diseases took a toll of 10,246 lives in 1988, 9,351 in 1989, and 10,219 in 1990.

Since diarrhea is a common affliction that has always been present in the population, and since there has been a continuing campaign of education on measures to prevent cholera, people suffering from an episode of diarrhea of some other origin frequently link it with this terrible disease.

In his discussion of the development of cholera, the minister said that 240 cases have been reported, of which five resulted in death. In Peru, the first country in Latin America to experience an outbreak in the current epidemic, 107,204 cases and 1,045 deaths were reported in the first eight weeks.

"The work which has been done to combat this dangerous disease, not only by the workers in the health sector, but through the active participation of all of the population, other government ministries, private business, churches, universities, and nongovernmental organizations, as well, is praiseworthy. In addition to implementing preventive measures, these agencies have taken on the task of serving as agents for the dissemination of the messages received," Montepeque Contreras emphasized.

He stressed that this makes the solidarity of the citizens of Guatemala at this moment of national crisis evident. He said the media played an important role in publicizing the necessary information.

On the subject of the criticisms alleging that an effort has been made to conceal the true figures on the number of patients and deaths, the minister said that they lack any foundation. This is because there is not one single way in which the Ministry of Health could benefit from the falsification of data, particularly since it is not responsible for the cholera pandemic which is currently afflicting the population of the world.

In conclusion, Minister Montepeque Contreras exhorted the people to redouble the preventive efforts, and thus, together, to triumph over the disease of cholera.

## NICARAGUA

### Health Minister Confirms First Case of Cholera

PA1111235291 Paris AFP in Spanish 2038 GMT  
11 Nov 91

[Text] Managua, 11 Nov (AFP)—Health Minister Ernesto Salmeron confirmed today the first case of cholera in Nicaragua, a two-year-old child who is out of danger.

"Cholera has reached Nicaragua," Salmeron said when announcing that two brothers of the sick child are under

medical observation, because they have symptoms of the disease that induces intense diarrhea.

The first case of cholera appeared in a slum area known as Batahola Sur, which has no potable water. It is located behind the U.S. Embassy in Managua.

After visiting the child's home, Salmeron reported that the Army "will immediately establish" the necessary infrastructure in the neighborhood to prevent the spread of the disease.

Batahola is one of nearly 200 slum areas in Managua that have no potable water, toilets with running water, or electricity.

Salmeron said that the authorities do not know what has been "the means of contamination" of the cholera bacteria, which was expected to enter through the northern border with Honduras, where cholera first appeared two weeks ago.

The first Central American country to be affected by cholera was Guatemala, three months ago. The disease then spread to El Salvador and Panama, and its appearance in Costa Rica is considered imminent. According to official statistics, about 100 persons have died and nearly 1,500 people have been infected in the Central American region.

According to the health authorities' estimates, should cholera spread in Nicaragua, approximately 80,000 persons would become ill, which is two percent of the national population, of which 200 to 300 could die.

## PANAMA

### Doctors Demand To Know Use of U.S. Medical Donation

PA1511171291 Panama City *EL SIGLO* in Spanish  
10 Nov 91 p 37

[Report by Andres Avila]

[Text] Dr. Mario E. Chanis, director of the Juan Diaz Health Center; Dr. Sebastian Martinez, director of the Tocumen Health Center; and Dr. Thomas Claude, director of the Pedregal Health Center, have demanded that Health Minister Dr. Guillermo Rolla Pimental explain how he used the medical equipment donated by the U.S. Southern Command, which was worth \$500,000 and came in six containers. The equipment was donated to help combat cholera.

The demands stem from Dr. Rolla's statements to the news media when the donation was made at Corozal Army Base on 10 October. Rolla said that the donation—which included medical implements, surgical and disposable supplies, hospital beds, stretchers, and office equipment—would be sent to regional hospitals and

health centers throughout the country. These health centers have not received the donations.

The doctors stated that the aid never arrived, although it would have been welcome because the health centers have no equipment or medicine to combat the scourge of cholera, which is threatening to grow worse every day. Dr. Chanis said that it was not right that a committee of area residents and officials had to establish a special ward to treat cholera patients paid for with state and

private donations when it could have used the aid from the U.S. Southern Command.

The directors of other health centers said that they were unaware of the donation and that it never reached its destination. Receiving the donation, made through the U.S. Defense Department's humanitarian assistance program, were Rolla and Comptroller General Ruben Dario Carles.

## AFGHANISTAN

### A Natural Focus of Sand-fly Fevers in the Republic of Afghanistan

*91WE0528A Moscow ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, in Russian No 3, Mar 91 (manuscript received 8 Feb 90) pp 39-41*

[Article by V. P. Nikolayev, V. S. Perepelkin, K. K. Rayevskiy, and Z. M. Prusakova; Scientific Research Institute of Military Medicine USSR Ministry of Defense, Leningrad]

UDC 616.98:578.833.27]-036.21 (581)

[Text] As previously reported, acute dengue-like febrile illnesses have occurred among Soviet military personnel in the Republic of Afghanistan during the warm seasons of the year (May-October)<sup>3</sup>. Virological and serological investigations of patients showed that in the majority of cases the disease was caused by the viruses of sand-fly fever Sicilian (SFS) and sand-fly fever-Naples (SFN), and that it was not possible to establish the etiology in a substantial portion of those who became ill. The results of an in-depth serological investigation of individuals who became ill in the period of their sojourn in the Rukha population center in August-September 1987 are discussed below.

#### Materials and Methods

Paired blood sera, collected in the first 3 days of the febrile period, and 16 and more days after the onset of the illness, were studied. The sera were tested for the presence of antibodies to a number of viral, rickettsial, and bacterial agents which induce similar febrile symptom complexes.

The antibodies to the viruses and rickettsiae were determined by the indirect fluorescent antibody (IFA) method.

The viral antigens for the IFA were accumulated in the cytoplasm of cells of the transplantable VNK-21 or SPEB lines grown on glass sheets in test tubes. Antigenic preparations of collection strains of the following viruses were utilized: SFS, SFN, Rift Valley, Chikungunya, and West Nile fevers, type 2 dengue, Japanese encephalitis, Tahyna, and Isfahan. The viruses enumerated were obtained from the D. I. Ivanovskiy Institute of Virology of the USSR Academy of Medical Sciences [AMN SSSR].

The antigenic preparations for the determination of antibodies to the rickettsiae consisted of smears from a suspension of commercial Rickettsia prowazekii corpuscular antigen, and from a suspension of Coxiella burnetii corpuscular antigen (strain "Luga yellow-necked mouse", fraction 1) obtained from the spleens of infected white mice, as well as touch smears of the peritoneum of white mice infected with Rickettsia sibirica (strain K-1) and Rickettsia tsutsugamushi (strain Gilliam).

The indirect hemagglutination (IHA) reaction of a commercial erythrocytic antigenic diagnosticum was used for identification of antibodies to the tularemia agent.

Antibodies to the brucellosis agent were detected in the indirect hemagglutination inhibition reaction (IHAI), using a suspension of Brucella melitensis as the antigen. The reaction was run using an erythrocytic immunoglobulin diagnosticum prepared in the Antiplague Scientific Institute of the Caucasus and the Transcaucasus of the USSR Ministry of Health (experimental series).

The sera, diluted 1:10, were heated at 65°C for 20 min before the IHA and the IHAI were run to prevent nonspecific hemagglutination.

#### Results and Discussion

A diagnostically significant increase in the antibody titer was established in 76.7% of subjects. Seroconversion was found to the agents of the Phlebovirus genus of the Bunyaviridae family in 73.9% of cases. In particular, an increase was found in the antibody titer to the SFS virus in 47.9% of patients, to the SFN virus in 20.5% of patients, and to the SFS and the SFN virus simultaneously in 4.1% of patients. An increase in the antibody titer to the SFS and to the Rift Valley fever viruses was established in one subject.

It should be noted that a 1:10-1:20 titer of antibodies was found, against the background of seroconversion in relation to the SFS or the SFN viruses, in both sera to the West Nile fevers, type 2 dengue, and Japanese encephalitis viruses, and to C. burnetii, R. prowazekii, and B. melitensis in a number of cases.

An increase was established in the antibody titer either to C. burnetii or B. melitensis in the sera of 2 patients with a clinical diagnosis of "sand-fly fever"; at the same time, there were no antibodies to the SFS virus, and the level of antibodies to the SFN virus was 1:10 in the first and second sera. The data on seroconversion to the Q fever and brucellosis agents, which at first glance suggest the participation of these microbes in the outbreak of febrile illnesses at the Rukha population center, in fact cannot be interpreted unequivocally, since both patients had only been at the work site for 2 weeks prior to the appearance of their fever, i. e., periods corresponding to the incubation period of both infections.

Seroconversion in relation to the agents utilized in the experiments was not established in 23.3% of the subjects; at the same time, 9.6% had no antibodies to these agents at all. Antibodies to the SFS and SFN viruses, the West Nile virus, C. burnetii, and R. prowazekii were found in the same titers in both sera in the remaining patients of this group. Several subjects had antibodies to two and even three agents.

If we take note of the presence of seroconversion in relation to the SFS and SFN viruses in the majority of the subjects, the detection of antibodies to these agents without an increase in their titer must evidently be

regarded as the result of a sand-fly fever also previously experienced during a stay in the Republic of Afghanistan. The titers of antibodies to the other agents did not exceed 1:40; therefore it must be acknowledged that their detection does not have diagnostic significance. Equally it does not seem justifiable to speak of the epidemiological significance of these findings, since in all cases the antibodies were found in individuals arriving at the Rukha garrison from other regions of the Republic of Afghanistan or the USSR where their contact with the agents of Q fever, brucellosis, or West Nile fever was entirely probable. The presence of antibodies to *R. prowazekii* is possibly associated with inoculations against louse-borne typhus or with a previously experienced infection induced by other rickettsiae of the louse-borne typhus group.

It is interesting to note, in connection with the detection of antibodies to the flaviruses, that the sera containing antibodies to the West Nile virus reacted at a dilution of 1:10 also with antigens of type 2 dengue and Japanese encephalitis viruses; this can be explained by the close antigenic affinity of the agent complexes of the Japanese encephalitis and dengue Flaviviridae family<sup>4</sup>.

The results of the in-depth serological investigation provide grounds for the assertion that the SFS and the SFN viruses, which were the etiologic factor of the acute febrile illnesses in the majority of the cases, circulated in the region of the Rukha population center in 1987. Similar data regarding the circulation of the SFS and the SFN viruses in the Republic of Afghanistan in 1986-1987 have also been obtained by S. Ya. Gaydamovich, et. al.<sup>1</sup>.

The simultaneous increase in antibodies to both agents established in some subjects should be interpreted as the result of a mixed infection, since marked cross-reactions between the SFS, the SFN, and the Rift Valley viruses have not been established with the use of IFA<sup>5</sup>.

According to our data, acute febrile illnesses with a similar clinical course have appeared in the region of the Rukha population center among both Soviet military personnel and the local population. The appearance of the illnesses has always been associated in time with the swarming and the activity of the *Phlebotomus papatasii* sand-flies, the natural transmitters of the SFS and the SFN viruses<sup>2</sup>.

#### Conclusions

1. The etiological structure of acute febrile illnesses among Soviet military personnel of the Rukha garrison in the spring-autumn period of 1987 was composed mainly of SFS and SFN.
2. The region of the Rukha population center (Republic of Afghanistan, Parwan Province) lies within the boundaries of a proposed stable natural focus of SFS and SFN.

3. The relatively high percentage of the cases of febrile illnesses with uncertain etiology is a basis for assuming their causal nexus with other agents.

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#### INDIA

##### 'Disturbing' Increase in Malaria in Bombay

92WE0094A *Bombay THE TIMES OF INDIA*  
*in English*, 3, 4 Oct 91

[Articles by Sandhya Srinivasan: "Malaria Control"; Part I, "Monitoring of Disease Below Par" and Part II, "Entire Surveillance Exercise a Farce"]

[3 Oct 91 p 5]

[Text] Bombay, Oct 2—There has been a disturbing increase in malaria cases this year in Bombay. A doctor from one of the city's top hospitals says, "We are seeing many more malaria positive smears this season." While the BMC records an average of 250-300 malaria positive cases a month, this hospital sees some three-four malaria positive slides daily, in a well-off population, less likely to be infected.

A look at the BMC surveillance programme indicates that, more than nonavailability of Primaquine, the foremost anti-malaria drug, the uncoordinated functioning of the BMC's various programmes is contributing to the alarming situation.

Malaria is transmitted by certain species of mosquito, all of which breed in stagnant water. Such conditions exist all over the city, given the poor drainage and garbage disposal facilities, particularly in slums, many of which are built on marshy land. But though slum-dwellers are most prone to getting malaria, these areas are not adequately sprayed with insecticide. Among the insecticides used is DDT, which is highly toxic; it is also ineffective against DDT-resistant strains which have developed in

the last few years. WHO publications acknowledge that wherever malaria has been eradicated from a country, it has happened along with social and economic development.

The BMC detects and treats approximately 3,000 cases of malaria every year in its parasite control programme, but the actual number of people treated in Bombay is many times higher. What is more, because of poor monitoring of city-wide treatment, they are treated in private and public facilities in a way that might actually increase resistance to anti-malarial drugs.

Of the four different strains of malaria only plasmodium vivax and p. falciparum are found in India. Vivax accounts for 80 percent of malaria cases here. Falciparum is more dangerous, and if untreated, can be fatal. But untreated malaria of any kind results in chronic ill-health, lowered resistance, and is a source of further infection.

The BMC figures for 1991 record 2,222 detected cases (of which 2,026 are of vivax) upto September 6. "These figures are no indication of the actual incidence of malaria in the city," says a private doctor. "More than twice that number are detected in private clinics." And many, many more people are treated symptomatically, without confirming that they suffer from malaria.

There are two parts to the malaria eradication programme: control of the vector—the mosquito—by spraying insecticide on its breeding grounds; and control of the malarial parasite in humans, through a surveillance programme. Surveillance is carried out at the active, passive and mass levels.

In the first, each investigator, who is responsible for a population of about 20,000 people, is supposed to visit 150-200 houses a day, and ask if anyone has a fever. "Suspected malaria cases are to be given a 600 mg dose of Chloroquine and their blood smears are sent to one of six BMC labs."

Until the recent directives, positive cases were tracked down and given a second dose of Chloroquine plus a five-day course of Primaquine, 15 mg daily. Each dose is supposed to be given personally, by the officer, after the patient has something to eat. On the sixth day, the patient's blood is to be retested and a second course is given, if necessary.

(The five-day course of Primaquine is a modification of the textbook-recommended 14-day course. A malaria specialist points out that a five day course takes care of 95 percent of cases. "The drug can be toxic on the red blood cells and the liver, so only if the patient suffers a relapse do we recommend the longer course, for which s/he should be hospitalised and monitored.")

Passive surveillance is through the collection of blood smears of suspected malaria cases by social workers who

sit at municipal OPDs, hospitals and dispensaries. Mass surveillance is an intensive survey of all houses in the area of a malaria outbreak.

(Incidentally, the same needle is used for all blood collections. It is cleaned with spirit in between. In September, the state government gave instructions to clean the needles between uses either by "enflaming" them or soaking in ethanol, Savlon or iodine; to boil the slides between uses, and to carry enough supplies for the day. This improvement on an admittedly primitive method had not reached the investigators till September 13. One investigator had both the standard issue and two disposable blades which she got on her own initiative "for special patients.")

This surveillance is not only supposed to treat all malaria cases, it is also meant to provide information on incidence in different areas, the source of infection, resistance to the drugs, etc. Without this information the government cannot consider the eradication or even control of malaria.

However, the parasite control programme is far from reaching this goal. There is no serious effort to collect information for an epidemiological approach to tackling the disease. The majority of malaria positive cases, as well as the much larger number of suspected malaria cases, are treated by private doctors. And the victims' poverty, combined with an inadequate public health system, ensures that many of these patients never get completely cured. Not only are their own lives affected by repeated bouts of fever, they also remain sources of infection for the parasite to be transmitted.

#### [4 Oct 91 p 3]

[Text] Bombay, Oct. 3—The BMC records the treatment of only 2,222 malaria positive patients in 1991 till September 6. The figures for the past four years are 2,087 (1987), 4,075 (1988), 3,274 (1989), and 3,258 (1990). But doctors will laugh at the idea that these are any reflection of the actual city-wide incidence.

The number of malaria drugs sold by private pharmacies indicates that the disease is rampant. "We get at least 10-12 prescriptions every week," says one Bandra drugist. On an average day, most pharmacies get at least four to five such prescriptions for chloroquine or pyrimethamine with sulpha. Doctors note a marked increase in the number of frank malaria cases. The pathological laboratories of two suburban hospitals get as many malaria positive blood smears as the BMC gets in its city-wide surveillance programme.

"House-to-house surveillance is very difficult," says Dr. S. S. Narvekar, deputy director, health services, Maharashtra. An investigator explains that the gap between visits to any particular household is about a month. Fevers in this interval remain unrecorded. "And many people—particularly the better off—refuse to talk to us."

But investigators don't necessarily do their job well. According to one social worker, the entire surveillance exercise is a farce. For example, up to September 6, of nearly 1 lakh blood smears collected by the active team, a total of 295 were found positive—0.3 percent. But in the passive collection, of 112,795 blood smears examined, 1,673 were found positive—1.5 percent. Are the active surveillance investigators less able to spot suspected malaria cases, or are the blood smears not of suspected malaria cases? Or are they making up figures?

Secondly, at municipal hospitals and health centres, though suspected malaria cases are supposed to be referred to the malaria social worker and blood smears sent to the BMC labs for testing, this is not always done.

Many OPD patients with suspected malaria are given chloroquine and sent off. "OPD patients are already confused and exhausted from registering, searching for the relevant ward, then the tests. Doctors tend to send the patients to the social worker only if they clearly need primaquine. I don't think the malaria social worker sees more than 10 percent of suspected malaria cases—and these are mostly the indoor patients." And if patients who come back with a relapse don't inform the doctor of their previous treatment, they are treated as new cases.

Another genuine problem is that addresses on the case papers are often illegible or incomplete, and even false. "If the slide is positive, how do we follow up," asks one doctor. A BMC doctor says that the department does maintain proper follow-up of cases detected at the OPDs, but in the next breath adds, "It is not always possible to trace the patients, and get their cooperation."

Though malaria is a notifiable disease, private hospitals and doctors rarely comply with the law, and the BMC does not enforce it. At one time, BMC workers used to collect information from doctors and hospitals, but this practice has been discontinued. Private clinics do not submit a record to the BMC of the number and results of malaria tests they have carried out monthly. And these numbers are considerable. When one top private hospital gets four to five malaria positive cases every day (it claims to have comprehensive statistics on malaria positive cases), a city-wide figure of 300 a month is obviously misleading.

The directors of the programme both at state and municipal levels insist that malaria is not a notifiable disease. But Dr. Narvekar and Dr. Deodhar disagree. "All these diseases—malaria, TB, leprosy, and many others—are notifiable," says Dr. Deodhar.

Thirdly, many poor patients prefer not to visit government hospitals, choosing to pay Rs 10 and get some relief rather than to spend a working day in a government hospital queue. The majority of poor patients will go to a private doctor unless they feel it is very serious. The hundreds of private doctors practicing in the slums do not find themselves starved for patients. And blood tests are a luxury for those better off, or the critically ill.

Says one doctor practising in Dharavi: "I must get about four to five 'frank malaria' cases a week. I don't prescribe a blood test for two reasons. The parasite can be seen in the blood only when the fever is at its peak. This is not always possible—hospitalisation is the best way to draw the blood at the right time. My patients can't afford this. Even if they could take a blood test outside, it would cost around Rs 30-40. My fees are Rs 10. I prescribe chloroquine, and metacalfen if the fever doesn't respond. The entire treatment shouldn't be more than Rs 20. Naturally this is what I recommend."

But such general practitioners can provide very limited facilities. They rarely know the results of the treatment. "If they get well, they don't come back, and if they get worse, they often go directly to a municipal hospital, so I won't necessarily know what happened."

A casual survey of 10 Bombay pharmacies reveals that they each get between five and 30 prescriptions weekly for malaria treatment. The BMC administers a radical treatment to only 3,000 malaria cases annually, in its malaria eradication programme. The majority of suspected malaria cases—both in public and private facilities—are treated without confirming the presence of the parasite, and there is no follow-up, which is essential to confirm that the parasite has been eradicated. And the BMC does not collect information on those few malaria positive cases that are documented by private hospitals. The result: a parasite control programme operating outside the principles of epidemiology.

"Years ago, extensive DDT spraying reduced the mosquito menace to such an extent that we thought malaria would be eradicated from India," says a pathologist who sees four to five malaria-positive slides daily. "But DDT resistant strains came back with a vengeance, and we could not afford the second and third generation pesticides. Today, we can only talk of control."

#### Implications of Bihar Kala-Azar Epidemic

92WE0097A *Bombay THE TIMES OF INDIA*  
*in English 22 Oct 91 p 8*

[Article by Subhash Kirpekar, *THE TIMES OF INDIA*  
News Service: "Sand-Fly Borne Disease Hits Bihar"]

[Text] New Delhi, Oct 21—The economic dimensions and social implications of the sand-fly borne "kala azar", now rampant in 30 districts of Bihar, are appalling. More so when one realises that the neighbouring states of West Bengal and Uttar Pradesh are telling Bihar to stop the spread of this disease, which has assumed epidemic proportions in 10 districts, including those adjoining the two states.

For every wage-earner in these low-budget families afflicted by "kala azar", the cost of treatment and the loss of wages is enormous. If the first-choice drug treatment is used for the patient, the cost is Rs 250. But if he

does not respond after two courses of the first-choice drug, then the cost of a treatment with the imported drug zooms up to Rs 4500.

Obviously, productivity goes down when hundreds of thousands of people are stricken by the disease in which there is recurrent fever, loss of weight, enlargement of the spleen and liver, leading to emaciation, and darkening of the skin.

The disease is caused by a parasite transmitted by female sand-flies.

The cost or prevention is cheaper than the cost of the cure. Unfortunately, the Bihar government, according to the chief secretary, was so busy with the elections that the operations for spraying DDT in May and June could not be organised. Since that is the only time, apart from February and March, that spraying can be done, it meant the loss of a whole year.

This led the Union health minister, Mr. M. L. Fotedar, to observe in the presence of the Bihar chief minister, Mr. Laloo Prasad Yadav, in Patna recently that the state government had shown "gross negligence" in tackling this problem.

Official statistics reveal only the tip of the iceberg. As against 19,689 cases of "kala azar" in Bihar in 1988 and 123 deaths, there were 30,903 cases and 477 deaths until August, 1991. The expert committee appointed by the Centre estimated that the actual number of affected persons may be four or five times the number reported.

Dr. C. P. Thakurm, well-known expert on the disease, heads the expert committee, which drew up a plan in mid-April for controlling it. Although the centre fulfilled its commitment of supplying DDT and medicines to the state, spraying was not done.

The Centre also received reports of indiscriminate use of the imported drug, Pentamidine, causing concern because of its after-effects and the onset of diabetes in many cases. The drug was imported despite a balance of payments problems faced by government.

Even though the full cost of the indigenous sodium stibo gluconate is ultimately reimbursable by the Centre to the state, the state did not lodge any claims in the current year on this account. Now, the Centre has asked the state government to submit fortnightly reports on "kala azar" cases.

The Bihar government has also neglected to inform the centre whether the state cabinet met and decided to announce that "kala azar" was a "notifiable disease." This provision makes it compulsory for every private medical practitioner and any government authority to notify the government of the cases that come to their notice.

The Centre has, meanwhile, decided on the advice of the expert committee, to send 4,000 metric tonnes of DDT for spraying in the affected districts of Bihar in February

and March in the first round and May and June in the second round. It has also estimated that 20,000 vials of Pentamadine would be required to treat five lakh cases.

Significantly, since most of the Bihar MPs belong to the Janata Dal and owe allegiance to the chief minister, they have not raised a cry about the ominous spread of "kala azar."

There is Mr. George Fernandes from Muzaffarpur, which registered nearly 5,500 cases and 62 deaths in 1990, Mr. Ram Vilas Paswan from Rosera, Mr. Shiv Charan Singh from Vaishali (9,916 cases and 213 deaths last year), Mr. Manhjey Lal from Samastipur (9,740 cases and 120 deaths last year), and others from Madhubani, Aharsa, Sitamarhi, Begusarai.

In the worst-affected 10 districts of Bihar, there is an effort by the local administration to link up treatment with education. For the first time, the state public relations department is being asked by the district units to provide data for educating the people.

However, experts feel that a multipronged effort is needed in which agriculture extension workers, railway hospital workers, Coal India staff and whoever else has a presence in Bihar should be mobilised for the good of the masses.

The TV and air stations in Patna, Muzaffarpur, Darbhanga and Bhagalpur also need to be utilised to educate the people on how to prevent the disease, they feel.

A painful disease that results in a distension of the stomach, the diagnosis of "kala azar" is dreaded because it reaches the bone marrow. Considering the economic and health aspects, it would be desirable, say experts, that everyone put his shoulder to the wheel to fight the gnat-sized sand-fly.

## IRAQ

### Health Sources on Spread of Diseases

JN3010160691 Baghdad INA in English 1340 GMT  
30 Oct 91

[Text] Baghdad, Oct 30, INA—Iraqi health sources said tragic health conditions in Iraq were further deteriorating due to the embargo imposed by the United States and its allies.

AL-THAWRAH newspaper of Baghdad today quoted these sources as saying that hundreds of Iraqi children, patients and elderly people were dying at hospitals due to the grave shortage of necessary medicines and the spread communicable and epidemic diseases.

The sources said that tetanus cases have increased three folds against those before the aggression and that polio cases among children also increased by three folds while cases of whooping cough among children have increased to seven folds.

The health sources further added that there is also a grave increase in the cases of cholera, typhoid and diarrhea and also the diseases common between the human and the animal like Malta fever in which some 11,896 cases were reported against 2,190 cases before the start of the aggression.

The director of the communicable diseases control center said that the Iraqi Health Ministry has adopted some measures for controlling the spread of these diseases in addition to an emergency plan for this purpose. He added that international health and humanitarian bodies and organizations were informed of the tragic food and environmental situation that was caused by the aggression and the economic embargo on the country.

The director of the environment protection department said that bombing of the power generation stations caused the suspension of drinking water pumping units and consequently caused a severe shortage in providing potable water to people.

#### **Health Ministry Reports 83 Polio Cases 'This Year'**

*JN0211155091 Baghdad INA in Arabic 1110 GMT  
2 Nov 91*

[Figures as received]

[Text] Baghdad, 2 Nov (INA)—The Ministry of Health has announced that polio cases totaled 83 this year as a result of the U.S.-Zionist-Atlantic aggression and the unjust economic blockade imposed on Iraq.

Dr. 'Abd-al-Rahman al-Ani, head of the Vaccination Department at the Ministry of Health, told INA that polio cases reported in Iraq were distributed as follows: 13 in Baghdad, 18 in al-Basrah, 11 in Irbil, 18 in Ninawa, seven in Diyala, five in al-Qadisiyah, four in Salah al-Din, and three each in Dhi Qar, al-Ta'mim, and Wasit, and two each in Maysan and Dahuk.

Al-Ani added that the infections were caused by the immense environmental pollution which has plagued Iraqi governorates as a result of the destruction of the Iraqi economy's infrastructure during the 30-state aggression, including the destruction of water purification stations, and the unjust economic blockade which caused huge shortages in medicines, vaccines, and medical requirements. These shortages also caused the preventive and curative health programs, especially polio programs, to falter, he noted. He indicated that Iraqi health teams expect a three-fold increase in the number of infections next year if the unjust economic blockade remains in force and the environmental pollution is not tackled.

#### **Health Officials on Spread of Diseases**

*JN0311144591 Baghdad INA in English 1400 GMT  
3 Nov 91*

[Text] Baghdad, Nov 3, INA—With the economic sanctions still in effect and the acute shortage of medicines and food, the health of the population in Iraq seems to be at stake because of growing environmental hazards, insufficient access to quality medical care and inadequate nutrition.

Public health programmes have reduced their activities due to lack of supplies. Hospitals and public health centres are severely affected by lack of electricity, water and medicines. Medical, surgical, dental and laboratory equipment suffer from lack of spare parts, reagents and maintenance.

Moreover, the halt of the immunization programmes due to the severe shortage of vaccines (all imported) caused widespread diseases.

Dr. Ahmad Hardan of the Health Control Centre of the Ministry of Health attributed the deteriorating health situation to the damage sustained by hospitals and health centres due to the U.S-led aggression against Iraq and acts of hooliganism in the days that followed the ceasefire.

He added that common communicable diseases of major public health hazards in Iraq are closely associated with population displacement and environmental sanitation. As water supply is deficient in both quality and quantity and services for waste disposal are severely reduced, the country is reporting an upsurge of cholera and typhoid cases.

According to Dr. Mu'zz-al-din al-Amin, head of Epidemics Control Department of the centre, the economic embargo and the lack of vaccines caused a noticeable like tetanus, poliomyelitis and pertussis.

Citing examples, Dr. al-Amin said health authorities have recorded a three-fold increase of tetanus, a seven-fold increase of polio and a three-fold increase of pertussis.

In the meantime, water-borne diseases such as cholera, typhoid, hepatitis, dysentery and diarrhoea take a heavy toll of the Iraqi population, said Dr. 'Ali Rajab, head of the centre's studies and research department. He added that some 9545 hepatitis cases were reported over the first eight months of 1991 compared with some 2548 cases for the same period last year, i.e. An increase of more than three fold over prewar reported figure.

Moreover, authorities concerned recorded some 412,103 cases of intestine worms over the first eight months of the current year compared with some 56,608 for the same period last year. Indicating an increase of more than seven fold in addition to some 10,178 cases of

geraldia in 1991 compared with 2,484 cases in 1990, that is nearly five-fold increase over last year's figure, said Dr. Rajab.

He added that typhoid fever has recorded a seven-fold increase over last year's. The centre has so far registered some 15,417 cases compared with some 2,195 cases for prewar period.

With regard to Malta fever (brucellosis), transmitted to man through the ingestion of unpasteurized milk and milk products or not well cooked meat, Dr. Rajab said the disease has recorded a five-fold increase, adding that brucellosis is highly an invasive microbe and if not checked, the disease will spread rapidly among both animals and men.

#### **Statement Notes Increase in Blindness, Eye Diseases**

*JN0511134691 Baghdad INA in Arabic 1216 GMT 5 Nov 91*

[Text] Baghdad, 5 Nov (INA)—The unjust economic blockade has caused an increase in the number of blind people in Iraq.

A statement issued by the Ministry of Health in Baghdad today stated that the lack of spare parts, laser equipment used in treating eye ailments, as well as the impact of certain diseases such as diabetes on eyesight, and the non use of laser equipment in eye hospitals due to the breakdown of conduction tubes, has caused a deterioration in the condition of those suffering retinosis and an increase in the number of those who are losing their eyesight.

The statement affirmed that what exacerbates the situation of those with eye infections is the unavailability of substitutes inside Iraq, especially the materials and items used in laser treatment.

The statement appealed to international and humanitarian organizations to act to lift the unjust economic blockade imposed on Iraq, especially within the domain of medicines and medical and food requirements, to stem the deteriorating tragic situation of those with eye ailments in Iraq.

#### **Health Minister Confers With UNICEF Official on Programs**

*JN2511194391 Baghdad INA in Arabic 1540 GMT 25 Nov 91*

[Text] Baghdad, 25 Nov (INA)—Health Minister 'Abd-al-Salam Muhammad Sa'id today conferred with Dr. Juzi Morzi [name as received], director of the UNICEF office in Iraq.

They reviewed efforts to implement a number of UNICEF programs in Iraq, including food projects for

Iraqi children, primary health care, anti-diarrhea campaigns, immunizations, maternity and child care, and control of communicable and respiratory diseases.

#### **LIBYA**

#### **Successful Outcome to Campaign Against Screw Worms**

*LD1311201591 Tripoli Great Jamahiriya Radio Network in Arabic 1230 GMT 13 Nov 91*

[Text] The director of the program for annihilating the screw worm in Tripoli reported that the stage of biological combating of the screw worm using sterile insects has been completed after achieving staggeringly successful results before the end of the period specified by the experts. In a press statement to JANA he said that the programme of using sterile worms was used for the first time in North Africa by establishing an air bridge for transporting the sterile worms in special transport aeroplanes from Mexico to the Great Jamahiriya.

He added: In 11 months more than 1,250,000,000 sterile worms were scattered in the whole infected region, which extended from al- Misratah in the east to the area of Bengardane in fraternal Tunisia with a depth of between 80 km and 100 km to the south. The director of the program for annihilating the screw worm praised the giant efforts exerted by the Great Jamahiriya in this context. The results of such efforts in biological and land combating were positive and successful.

#### **NEPAL**

#### **Fatal Tropical Disease Kills 51 in Southeast**

*BK1511003091 Hong Kong AFP in English 1937 GMT 14 Nov 91*

[Text] Kathmandu, Nov 14 (AFP)—The fatal tropical disease Kala-azar has claimed 51 lives in recent weeks in southeastern Nepal, a public health official said Thursday.

The disease "has affected altogether eight districts in the tropical region adjoining the Indian state of Bihar, and the two mountainous districts of Palpa and Okhaldhunga," said Dr. M.B. Bista, deputy chief of the Epidemiology Division of the Department of Public Health.

Describing as "exaggerated" claims by the pro-Indian Sadbhavana (Goodwill Party) that the disease had reached epidemic proportions and claimed 200 lives, Bista said 474 people had been affected and 51 had died.

Bista identified the industrial township of Morang, 290 kilometres (181 miles) southeast of Kathmandu, as the worst hit area, with 317 cases reported in recent weeks, of whom 42 had died.

Kala-azar is transmitted to people through the bite of the sand fly and affects the liver and the spleen.

"The disease is transported from the Indian state of Bihar where hundreds of people have already died," Bitas said.

A medical team, headed by senior epidemiologist Dr. Arun Thapa, left here Thursday with medical supplies for the affected districts.

**Cholera Spreads in Black Sea Area**

*91UN2789A Moscow RABOCHAYA TRIBUNA  
in Russian 21 Sep 91 p 4*

[Article by RABOCHAYA TRIBUNA correspondent Oleg Grabovskiy under the rubric "Stop the Presses!": "All We Needed Was Cholera"]

[Text] Nikolayevn—Moving stubbornly from the lower reaches of the Dunay along the coastal areas of the Black Sea, it has reached Nikolayev Oblast, where 12 carriers of this dangerous disease have been identified.

The path of the disease to the Southern Bug can be traced along the map. RABOCHAYA TRIBUNA reported on the first instance of cholera sickness in June, when a border guard in Moldova fell ill from it. This occurred on the River Prut, along which the USSR border runs. In the opinion of epidemiologists, the fatal cholera germs came from the other side.

Soon afterwards, 40 individuals were identified as being afflicted with cholera and 110 as carriers of the disease in Kiliya and Vilkovo, in Odessa Oblast. Their numbers continued menacingly to grow. And it is no wonder. When I asked V. Prutkin, deputy chief physician of the Odessa Oblast Medical and Epidemiological Center, to explain what was being done to stop the attack of cholera, he was never able to give me an answer.

Right now a strong team to fight cholera is being organized under the leadership of V. Maltsev, Ukrainian first deputy minister of public health. Unfortunately, it has not yet been able to curb the disease. Making its way along the seacoast polluted by waves of vacationers who have left it together with the summer, it has come now to the Southern Bug. Will this river become a barrier for the cholera, a similar outbreak of which struck these regions 20 years ago? It is just a stone's throw from Nikolayev to the Dnepr...

**Cholera Case in Moldova**

*91WE0424B Moscow TRUD in Russian 27 Jan 91 p 1*

[Article by V. Davydov under the rubric " Facts and Commentaries": "Cholera is Not Retreating," first paragraph is TRUD introduction]

[Text] Two extremely alarming reports have been received by the editorial office. Here they are:

A case of cholera was recorded in Moldova. Specialists determined that it was caused by a vibron detected in Prut River.

A report of water pollution in the city was also received about the Volga. Vibrio cholerae was detected in one of the hundreds of water samples taken near the right bank, in the central part of Volgograd....

Thus, is this a sudden danger? No, it is not sudden; it is simply that many of us who are spared from "excessive"

information do not know that the seventh cholera pandemic in the entire history of mankind began in 1961. It struck us in 1965 from Karakalpakiya and ever since there have been alternate declines and flare-ups.

This is the longest pandemic in history. The preceding one, for example, lasted 27 years. The "seventh cholera" was not caused by the classical Asian vibron, but the more treacherous El Tor.

Such is its prior history. And how has our health care service coped with the pandemic:

"The most stressful time has now come for us; June and July are the most favorable for cholera," we are told by G. Onishchenko, deputy chief of the Main Administration for Epidemiology of the USSR Ministry of Health. "The outbreaks of last October and this March were caused by a virus brought in from India and Africa...."

As before, such traditional cholera regions as Karakalpakiya, Astrakhan, the lower reaches of the Don River (after Rostov) are the most hazardous to the public.... So far there have been no fatalities, but the situation will remain tense until September, when the vibron cease to express its activity.

Thanks to the steps that are being taken, there have been no more than about 10 patients infected with the "domestic" virus. However, we have quite a few vibron carriers. and there could be a sudden outbreak of cholera anywhere. For this reason, there must be strict monitoring of guaranteed purity of drinking and household water, sanitary conditions in children's institutions, public catering facilities and trade enterprises.

**Cholera in Kishinev**

*91WE0424A Moscow SELSKAYA ZHIZN in Russian  
26 Jun 91 p 4*

[Article by F. Angeli, TASS correspondent, dateline Kishinev, 25 June: "Careful: Cholera"]

[Text]The first case of cholera has been found among border workers on the Romanian frontier. Specialists determined that cholera was caused by a vibron detected in the Prut River.

According to the data of the World Health Organization, in 1990 there were 270 recorded cases of cholera in populated centers of neighboring Romania, with one fatality. The cases are related to bathing in contaminated water of open reservoirs, use of water for household purposes and consumption of raw fish from the Danube.

**Current State of Foci of Tickborne Relapsing Fever in Western Pamirs**

*91WE0288A Moscow MEDITSINSKAYA  
PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI  
in Russian No 6, Nov-Dec 90 pp 31-34*

[Article by I. S. Vasilyeva, A. S. Yershova, G. M. Vilisov, P. G. Khizhinskiy, B. Sh. Shoismatulloev, A. Ikbolov,

S. Nidoyev, and M. Muminshoyev, Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Mart-sinovskiy, USSR Ministry of Health, Moscow; SAFNTYaN [not further expanded], Republic Sanitation-Epidemiology Station of Tadjik SSR, Dushanbe]

UDC 616.98:579.842.14]-036.2-07

[Text] The situation regarding tickborne relapsing fever in the republics of Central Asia has been studied rather widely in recent years.<sup>2,8</sup> But for several decades now, the Pamirs have been completely left out of the research. In the meantime, as determined by a combined expedition led by Academician Ye. N. Pavlovskiy in 1935-1937, tickborne relapsing fever was a paramount, widespread disease in the Western Pamirs, and all the population centers in the Pyandzh Valley had the vector—the tick *Ornithodoros papillipes Bir.*—sometimes in large numbers.<sup>7,9,10</sup> The materials assembled by that expedition on the tick population, the habitat features of the vector, and the epidemiology of tickborne relapsing fever pointed to a situation that had become common, since pesticides were not in use yet, and cultural changes in the daily lives of the population that unavoidably lead to a reduction of the tick population were only beginning. The next (and last) study in the Pamirs was

performed by M. V. Pospelovaya-Strom in 1965-1966, when pesticide use and lifestyle changes were in full swing.<sup>11</sup>

That is why a study of the current state of the foci of tickborne relapsing fever in the Pamirs and an evaluation of the changes that have taken place are of such great interest.

#### Material and Methods

In July-August 1989, population centers of the same part of the Pyandzh Valley studied in the 1930s and 1960s were reconnoitered for the presence of the tick *O. papillipes*—namely, from Kalay-Khumb to Langar near the sources of the Pyandzh at the confluence of the Pamir-Darya and Vakhan-Darya rivers. That area includes five administrative rayons that can be rather clearly broken down into three groups by altitude above sea level, climate, soils, and vegetation: the first is the Kalay-Khumbskiy Rayon; the second is the Vanchskiy, Russanskiy, and Shugnanskiy rayons; and the third is the Ishkashimskiy Rayon (which includes what was formerly the Vakhanskiy Rayon). See Table 1. According to the natural regionalization, the Kulay-Khumbskiy Rayon belongs to the Gissaro-Darnazsk Province, the rest, to the Badakhshansk Province.<sup>1</sup>

Table 1. Native conditions in the Western Pamirs in the Pyandzh Valley

Rayon	Altitude above sea level, m	Average monthly temperature, °C		Sum of temperatures above 10°C	Average amount of rainfall, mm	Soils
		January	July			
Kalay-Khumbskiy	1500-2000, low altitude	0 to -2	24 to 28	4000-5000	400-800	Gray desert soil
Vanchskiy, Russanskiy, Shugnanskiy	2000-2500, middle altitude	-4 to -8	20-24	3000-4000	200-400	
Ishkashimskiy	2500-3000, high altitude	-8 to -12	16-20	1500-3000	100-200	High mountain desert

Note: All data from the Atlas of Tadjik SSR<sup>1</sup>

A total of 42 households were surveyed in 11 population centers (Table 2). At each location, a standard substrate sample of 1-3 liters (depending on the amount of substrate available) was studied, and the sample was taken from spots most favorable to ticks—holes and recesses between rocks in corners and at the base of the wall opposite an entrance.<sup>3</sup> A total of 665 *O. papilles* nymphs

and imagoes were collected. All the ticks were checked for infection by the agent of tickborne relapsing fever *Borrelia sogdiana* after they fed on susceptible animals (guinea pigs), and the blood was then checked with microscopy. A total of 15 batches with 10-84 ticks in each were studied. An individual batch contained specimens collected from 1-3 households.

Table 2. Results of study of population centers in Western Pamirs (1989)

Rayon	Population center	Households surveyed	Those with ticks	Ticks collected	Batches checked for <i>Borrelia</i>	Strains isolated
Kalay-Khumbskiy	Khumbivari	3	0	0	-	-
	Andzhirak	3	0	0	-	-
	Zing	3	0	0	-	-
Vanchskiy	Bunay	5	4	29	2	0
	Rokharv	1	0	0	-	-

Table 2. Results of study of population centers in Western Pamirs (1989) (Continued)

Rayon	Population center	Households surveyed	Those with ticks	Ticks collected	Batches checked for <i>Borrelia</i>	Strains isolated
Rushanskiy	Gishkhun	2	2	176	3	1
	Rushan	3	0	0	-	-
	Derushan	7	4	49	2	0
Shugnanskiy	Khorog (city)	5	4	199	3	0
Ishkashimskiy	Langar	7	5	160	3	2
	Zong	3	3	52	2	0
Total		11	42	665	15	3

### Results and Discussion

*Current situation and factors determining it.* Ticks were found in most of the population centers that were studied (See Table 2). Of all the households examined, 52.4% were infested with ticks, and in the populations centers where ticks were found, 76% were infested. In a standard sample, anywhere from one or two ticks to 166 ticks were found. We didn't manage to find any ticks in the Kalay-Khumbskiy Rayon, apparently because of their small population and the small number of studies. Without a doubt, there are ticks there, because cases of tickborne relapsing fever are recorded there regularly. At the points we studied in the Vanchskiy, Shugnanskiy, and Ishkashimskiy rayons, the tick populations are high (we found an average of 21-40 ticks per farmstead); at the points in the Rushanskiy rayon, the population is somewhat lower (we found 5 ticks per farmstead). The sex-age structure of those populations indicates that they are flourishing.<sup>4</sup> Most of what was collected (85-100%, an average of 94%) consisted of nymphs, and among the imagoes, males predominated in a ration of 1:2.2.

At present in the Pamirs, the principal habitats for the ticks—livestock pens—have, for the most, retained the features that are traditionally favorable to the existence of ticks. Every farmstead has at least 2-4 livestock pens. Most are winter barns; livestock sheds that are less suitable for ticks are fairly rare. The barns are dark, with no windows. Their walls, as in past years, are made of stones mortared with clay. At the base of the walls, between the stones, there are many niches and holes dug by rodents, which is where the ticks are concentrated. New barns are often built in the same spots, out of the same stones that were used for the old barns. Within 4-7 years after being raised, most of them are populated with ticks. New barn structure designs are noted more often in Kalay-Khumbskiy Rayon, where, typically, walls are carefully plastered with clay and have cement foundations and the percentage of new structures is quite high. As one moves deeper into the Western Pamirs, alterations in the traditional type of structure are seen less often.

Ticks are very rarely found in human dwellings. Their probable biotopes—holes and cracks—are, as a rule, inaccessible to study in the typical Pamir homes, which have

clay or wooden porches along the walls. The walls are carefully plastered and are painted with oil-based paint.

As in the past, structures in populations centers in the Western Pamirs are typically crowded, which fosters the migration of ticks and their contact with humans. In many households, the dwellings and barns are combined into one structure, and often the structures of 2-3 farmers are quite close to one another. Old dwellings are often used for barns, and sometimes vice-versa. We saw one old, tick-infested barn that had been converted into a dwelling.

The use of pesticides has not had much of an effect on the populations of the vector of tickborne relapsing fever in the Pamirs. According to the data of the health-epidemiological service, ticks haven't been sprayed for in the last 10-15 years, even on farms on which cases of tickborne relapsing fever have been identified. In the Kalay-Khumbskiy, Rushanskiy, and Vanchskiy rayons, mosquitoes are sprayed for regularly, which reduces the tick population somewhat; mosquitoes have been quite populous in recent years in the first two rayons. In the Ishkashimskiy rayon, there haven't been any. Spraying done independently by farmers against other arthropods may also affect the tick population, but such measures are taken rarely or erratically.

Thus, in spite of growing anthropogenic measures, conditions favorable to ticks still exist today in the Western Pamirs.

*A comparison of today's situation with those of the 1930s and the 1960s.* The range of the ticks is virtually unchanged. Although we couldn't find ticks in some population centers, the cases of tickborne relapsing fever recorded in them indicate that most of the population centers we examined are infested with them. Ticks were found even in the oblast center, the city of Khorog. The similarity of livestock pens in each rayon enable us to extrapolate that conclusion to the entire valley. The tick population, although still quite high, is substantially lower than it was both in the 1930s and the 1960s. The average number of ticks found per farm in 1965-1966 was twice that for 1989.<sup>11</sup> Typically, the percentage of affected households declined to a lesser degree—by 1.5-fold.

The tick population ratio among the various parts of the Pyandzh Valley has changed somewhat. In the 1930s, the

tick population clearly grew larger as one approached the headwaters of the Pyandzh.<sup>7,10</sup> The heaviest population was noted in the kishlak [village] of Langar, which is situated at the source of the Pyandzh River, at the very highest elevation in the tick's geographical range (2,800 meters above sea level), where the climate is very dry and cool. Just beyond Langar, according to Zmeyev,<sup>7</sup> is the edge of the tick's geographical area. It coincides with a temperature line beyond which the sum of temperatures above 10°C is 1500°.<sup>1</sup> Because tick-limiting anthropogenic measures were minimal in the 1930s, the variations in the tick population were apparently due primarily to natural conditions that, within that relatively small area, change quite considerably as altitude increases.

At present, the tick population grows as one moves from low altitude to middle altitude, i.e., from Kalay-Khumskiy Rayon to Vanchskiy Rayon. But as one goes higher along the Pyandzh Valley, the tick population levels remain virtually unchanged, with the exception of Rushanskiy Rayon, where it even declines a little. Langar kishlak does not have a higher tick population. Apparently, in spite of the fact that the limiting anthropogenic factors encountered as one goes deeper into the Pamirs are less noticeable, their effect on the tick population grows. As one approaches the edge of the tick's geographical area, the climatic conditions approach a critical point, and because of that, even relatively minor anthropogenic measures are enough to alter the conditions for the tick's existence considerably.

The change in the situation is indirectly confirmed by data from a survey of the human population. In the 1930s, in the Western Pamirs and everywhere else in the tick's geographic area, everyone knew about the ticks living in the structures and about the infection transmitted by them, and there were a lot of complaints about tick bites.<sup>7,9,10</sup> Now people know of the ticks and complain of tick bites only in the rayons with large tick populations (Vanchskiy, Shugnanskiy, and Ishkashimskiy rayons), but nowhere near all the inhabitants know of the ticks. Only in the kishlaks of Langar and Zong is the situation similar to what it was in the past: all those we surveyed, even the children, knew of the ticks and felt sure that they were in every home and often bit people. Such a situation, it seems, is due to the elevated probability of contact between humans and ticks. In the narrow mountain valleys of the Pamirs, especially in remote, hard-to-get-to kishlaks like Langar and Zong, the people still have, by and large, the traditional types of structures in which the living space and the livestock pens are right next to each other, which increases the possibility of ticks getting into the human dwellings.

In other parts of the vector's geographical area, our perennial study data for population centers in various oblasts of Uzbek SSR<sup>2,3</sup> show that such structures are encountered today extremely rarely—only on a few of the old farms that remain. In most of the households, the barns are some distance from the human dwellings. Although the tick population is usually not lower than in

the Pamirs, and often is higher, the overwhelming majority of local people know nothing of the ticks as vectors of tickborne relapsing fever and seldom complain of tick bites, despite cases of the illness.

In checking the spontaneous infection rate, we isolated three strains of *B. sogdiana* from the 15 batches of ticks, i.e., out of 22 tick-infected households, only three had ticks that were infected (see Table 2); two of the households were from the kishlak of Langar. In the 1930s, borrelia were isolated from most of the batches studied (15 of 20), and the number of specimens in each ranged from one to 500.<sup>7,9</sup> In two of our earlier studies, we demonstrated experimentally that infected ticks are typically less viable than are uninfected ticks and that more of them die from various unfavorable factors.<sup>5,6</sup> The differences in the level of infection rate may have some effect on that, but it is difficult for us to confirm that with complete certainty, because of the incomplete description provided by the initial material gathered in the 1930s.

### Conclusion

At present, the *O. papillipes* tick is widespread in the Western Pamirs, and its range has changed very little since the 1930s and 1960s, although there is a noticeable decline in its population, even among ticks not exposed to extermination measures. The data we obtained enable the assumption that the rate of infection of the ticks by the agent of tickborne relapsing fever is declining.

In the Pyandzh Valley, at the edge of the geographic area of the vector, where the natural conditions vary substantially with altitude within a relatively small sector, there is a clear, combined limiting effect on the vector population by anthropogenic and natural factors. Nevertheless, the construction features of populations centers in the Pamirs today preserve conditions that are favorable to the existence of the vectors and contact between humans and ticks. Those features distinguish the Western Pamirs, especially its remote regions, from other parts of the vector's geographic area.

Thus, foci of tickborne relapsing fever remain in the Western Pamirs, and the epidemiological danger presented by them is quite high, which is confirmed by the tickborne relapsing fever morbidity rate there.

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#### New Aspects of the Epidemiology of Tick-Borne Encephalitis

91WE0268C Moscow MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI in Russian No 5, Jan-Feb 91 pp 37-40 (MS received 23 Feb 90)

[Article by A. N. Alekseyev, Institute of Poliomyelitis and Viral Encephalitis, USSR Academy of Medical Sciences, Moscow]

UDC  
616.831-002-022.7:578.833.26]-022.39:576.895.42]-036.2

[Text] "Being a transmissible polyhost zoonosis, tick-borne encephalitis has a complex epidemiology and an even more complex epizootiology" [10]. We need only add that thorough study of the circulation of tick-borne encephalitis (TBE) virus in nature can only confirm this supposition by revealing more and more new aspects of this highly complex phenomenon. In this case the basic premises concerning TBE epidemiology proposed by V. N. Beklemishev [10] remain immutable: The probability of effective infection continues to be proportional to the percentage of nonimmune persons in the population coming into contact with a focus, while the sum of infections continues to consist of infections due to attachment of hungry ticks to man or to domestic animals that transmit the virus to man through milk.

However, new data on the mechanisms of virus transmission by specific vectors allow us to alter some of our ideas about the sources of the population's immunization, about the dependence of the severity of TBE on the dose of the virus and on the time of tick attachment,

about the effectiveness of a preventive measure such as early removal of attached ticks, and about the periods of dangerous tick invasions in nature.

Experimental data we obtained in the Laboratory of Arbovirus Ecology of the Institute of Poliomyelitis and Viral Encephalitis of the USSR Academy of Medical Sciences provide the possibility for reviewing the role of male ixodid ticks in creating an immune stratum within the population—a role that is especially important among permanent inhabitants of focal territories [19]. Cases of attachment of male ixodid ticks to man are known [1,20], but their role as virus donors had not been verified earlier. As we can see from Table 1, males of all tested species contain quantities of virus in their saliva sufficient to begin an infectious process.

Table 1. Transfer of Virus Upon Attachment of Male Ixodid Ticks to a Host [18] and the Virus Titer in Tick Saliva

Tick Species	Virus Titer in Saliva, lg LD <sub>50</sub> per 0.03 ml	Ratio of Number of Virus Transfers to White Mice by Tick Bites to the Number of Ticks
<i>Ixodes persulcatus</i>	0.1	2/2
<i>I. ricinus</i>	0.1-1.5	4/4
<i>Dermacentor reticulatus</i>	0.1-1.2	3/5
<i>D. marginatus</i>	-	9/12
<i>Hyalomma anatolicum</i>	1.5	-

Usually, short-term attachment and a relatively insignificant concentration of virus in saliva apparently elicit inobvious forms of infection and development of immunity. The absence of a visible skin reaction is associated most likely not only with the short time of attachment but also with the fact that the chemical composition of the saliva of males is different from that of females. For the same reasons, attachment of males to people is recorded extremely rarely. In the meantime it is well known that the ratio of the number of males to females in genus *Ixodes* in nature is approximately the same [8,11]. Ticks of genus *Dermacentor* attach to man more rarely [16]. However, this tick, one of the possible vectors of TBE in Central Europe [15], possesses one unique, previously unknown biological feature. In contrast to females, males of this species that had received the virus in a preceding phase of development are capable of short-term attachment as early as 3-4 days after molting, and of virus transfer. Thus in our experiments 12 out of 13 *D. marginatus* males attached within this time, while 9 out of 12 (see Table 1) transferred TBE virus to sensitive animals by bite. If we consider that male ixodid ticks become active in season before females [8] and are capable of reattaching in as little as 15-20 minutes after a previous attachment [1], their role in causing an epidemic in a population may increase even more.

Moreover, inasmuch as it has now been established that the severity of the course of TBE depends not only on the place of attachment but also on the number of bites [12], the ability of little-noticeable but numerous injectors of small amounts of virus, which is what males are, can assume a menacing nature in the epidemiology of TBE.

Presence of virus in the saliva of males can increase the probability of sexual transmission of the agent to females not only due to its presence in sperm [17] but also due to lubrication of a spermatophore with infected saliva and when males feed on females, which is typical of males of

genus *Ixodes* [21]. These features of the life pattern of males increases their role in maintaining a reserve of the virus in nature, which has indirect but fully significant epidemic significance, ensuring stable existence of TBE foci.

The premise that the severity of the course of TBE and the probability of its appearance depends on the time of feeding of attached female ixodid ticks will have to be reviewed in connection with the significant amounts of virus discovered in the first portions of liquid saliva from hungry females (Table 2) and in its cement fraction [5].

**Table 2. Detection and Amount of TBE Virus in the First Portion of Saliva of Parenterally Infected Ixodid Females**

Tick Species	Ratio of Number of Cases of Virus Detection to Number of Saliva Samples	Virus Titers in Saliva, Ig LD <sub>50</sub> per 0.03 ml	
		Variation Limits	Average
<i>Ixodes persulcatus</i>	5/5	0.1-1.5	0.5
<i>Dermacentor marginatus</i>	13/24	0.1-1.5	0.8
<i>Hyalomma anatomicum</i>	4/22	0.5-2.2	1.3

The classical works of Pavlovskiy and Solovyev [13,14], and later Balashov [9], which demonstrated growth and development of salivary glands as female ixodid ticks feed and presence of significant amounts of virus in salivary glands, created the firm conviction that with longer feeding, the probability of infection and the possibility of severer illness grow due to introduction of increasing amounts of virus into the body of man or some other sensitive animal. These data, judging from a reference made in Shapoval [19], seem to have been confirmed in experiments run by Ye. N. Levkovich. According to her

data development of disease in white mice was observed only when attachment time was not less than 3 hours.

However, we were able to show that illness may arise in animals also when ticks attach for a significantly shorter time (1 hour or less); moreover the intensity of viremia, and consequently the severity of illness, depended not on attachment time and not on the virus titer in the tick body, but on whether the cement cone serving to secure the tick to the skin of a vertebrate host remains in the animal's skin (or is removed together with the tick) (Table 3).

**Table 3. Transfer of TBE Virus and Level of Viremia in Recipient Animals Depending on Time of Attachment and Retention of Saliva's Cement Fraction in the Host's Skin [7]**

Attachment Time, hr	Presence of Cement Cone in Skin	Tick Species	TBE Virus Titer, Ig LD <sub>50</sub> per 0.03 ml				TBE Develops in Mice	
			In the Tick Body	In the Cone	In Blood of Mice, hr			
					After 24	After 48		
1.0	Yes	<i>I. ricinus</i>	1.5		0.1	2.75	+	
		"	5.0		2.5	3.0	+	
		"	6.0		4.5	2.0	+	
2.0	Removed	<i>D. reticulatus</i>	0.1		0.5	0.5	+	
		<i>I. ricinus</i>	2.0	No data*	0	0	+	
		"	6.0	Analyzed together with tick**	0.1	No data*	+	
		<i>D. reticulatus</i>	2.5	"	0	0	-	
		<i>I. ricinus</i>	3.0	0.2	0.1	0.1	+	

\*—virus in cone or in mouse blood was not analyzed; \*\*—ticks titrated on white mouse nipples together with cement cone on proboscis

**Table 4. Amount of Virus in Cement Cone and in Body of Ixodid Females Different Times After Attachment (Excerpt From a Table in Alekseyev and Chunikhin's Article [7])**

Time From Attachment to Removal of Tick and Cone	Tick Species	Virus Titer, lg LD <sub>50</sub> per 0.03 ml	
		In Cement Cone	In Female Body
2 hr	<i>I. ricinus</i>	0.2	3.0
17-18 hr	"	3.0	0.1
	"	5.0	3.0
1 day or more (up to 3)	<i>D. reticulatus</i>	1.5	3.5
	"	0.	3.0
	<i>I. persulcatus</i>	1.0	1.5
	"	3.5	3.5
	"	4.5	4.0
	"	4.5	5.0

The role of the cement cone in skin is also demonstrated with longer attachment of ticks. Thus an *I. persulcatus* female was torn off by a mouse after 19 hours, and then we removed the cement cone together with the skin, and analyzed it for virus concentration after removing it from skin tissue. The virus titer in it was found to be equal to 30 lg LD<sub>50</sub> per 0.03 ml; the mouse fell ill, but the virus titer in its blood did not exceed 1.5 lg on the first and second days, which, as is evident from Table 3, is below the titers determined when the ticks were attached for less than 1 hour and were removed, while the cement saliva cone remained in the skin. Later on we were able to show in special experiments, in which the cement cone was removed from the skin of the female, and it and the female were analyzed separately, that the virus concentration in this skin sample could be comparable and even greater than that in the entire body of the female as a whole (Table 4).

Naturally, given this ratio of the concentrations of the virus in the cement cone and in all of the rest of the female body, no matter what volume of liquid saliva we received from detached females, the maximum TBE virus titers in it never exceeded the maximums in the cement cone. The conclusion that follows from these data is that infection of animals (and man) depends to much less degree on time of attachment than on presence of a cement plug in the skin, sometimes containing very high virus concentrations.

Therefore the recommendation to cautiously remove ticks from an individual's skin early on has only a purely psychological effect, having not even the slightest influence upon the course of the infectious process, if virus is present in the cement plug. Removal of a tick together with its cone is possible only with *I. ricinus* and *D. reticulatus*, and only very soon after attachment, at the

same time that we had to invariably remove the cone formed by *I. persulcatus* together with a portion of skin. The possibility is not excluded that the milder course of illness elicited by attachment of *I. ricinus* and ticks of genus *Dermacentor* depends, besides on strain differences of the virus, on the "weakness" of the cement plugs and on the somewhat smaller concentration of virus in them.

The role of liquid saliva intensively pumped out in later stages and containing significant quantities of virus apparently lies not in further infection of the recipient animal but in, besides removal of excess water, trans-salivary transfer of virus to ticks attaching later, near other ticks jointly feeding on animals insensitive to TBE virus. The possibility of such transfer—trans-salivary—was demonstrated by us in joint feeding of different ixodid species on guinea pigs [6].

This pathway of virus exchange in nature has only indirect significance to the epidemiology of TBE, but it is important to the ecology of the virus, explaining yet another way in which its reserves are maintained in nature and virus strains are exchanged between different species of ticks that feed on host animals at the same time.

The fact we established that infected female ixodid ticks have greater mobility and activity than uninfected ones [2] and the fact that the proportion of females infected with TBE virus increases among individuals remaining active as they age (as physiological ages supersede one another) [4] are doubtlessly important to TBE epidemiology. This apparently compensates somewhat for the virus and for seasonal drop of population abundance, as well as for the decrease in the ability of older females to transfer virus with saliva [3]. It should not be thought that the virus—an obligate intracellular parasite—could be a kind of "vitamin" for ticks, but there are full grounds for suggesting that the virus "selects" the most active and viable individuals for replication, which also compensates for its small reserve in nature and enhances the significance of precisely such individuals to the transfer of TBE virus. On this basis we can propose that the proportion of infected individuals collected from an individual serving as bait or on a trap may be higher than the amount collected on a flag or with a tuck net.

#### Conclusion

This study first of all revealed the importance of studying the details of salivation by blood-sucking arthropods serving as vectors of arboviruses, and of studying the influence of the agent on the behavior of the infected invertebrate host ready for transfer to the epidemiology of transmissible infections.

Rather regular release of virus with the saliva of male ixodid ticks, when compared with data on the frequency of their reattachment and the role of the multiplicity of bites in development of severe cases of TBE, indicates

that male ixodid ticks play a greater role in the appearance of an immune population stratum and greater severity of infection course than had been supposed earlier. The possibility that the disease agent is additionally introduced into females by lubrication of spermatophores by males with infected saliva enhances their role in maintaining reserves of the virus in nature.

Detection of virus in the very first portions of saliva from females and significant amounts of it in the cement plug by which ticks secure themselves to the skin of their vertebrate host changes our ideas about the time at which the infection process begins and about the possibilities for preventing disease by removing attached ticks from the skin early.

Continuing release of virus with liquid saliva, removal of which is necessary for intake of large quantities of blood to occur, most probably serves in nature not as a means of further infecting an already infected sensitive vertebrate host, but of exchanging virus with uninfected ticks in other phases of development or with ticks of other sex or species attached jointly to resistant hosts—that is, of maintaining a reserve of the virus in the focus, though not through sexual but through trans-salivary transmission.

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#### A New Approach to Overcoming the Drug Resistance of Malaria Agents

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[Text] Chemotherapy occupies one of the leading places in the overall system of malaria control measures owing to the possibility of achieving not only therapeutic and preventive but also epidemiological effects. However, wide use of antimalaria drugs created one of the most serious problems of malaria research—drug resistance of tropical malaria, an infection which even without the agent's drug resistance is a leading cause of morbidity and mortality of the population in endemic zones. Observations accumulated over the last 40 years indicate that not one of the antimalaria drugs that have been successively introduced into practice or even their combinations can serve as a long-term alternative. Special difficulties are associated with the resistance of *Plasmodium falciparum* to chloroquine—the cheapest, most widely used specific agent with a broad spectrum of action—owing to the high activity of *P. falciparum* in the past in all areas of its occurrence. While chloroquine has retained its value against *vivax* and *ovale* malaria, reports have appeared [35] concerning isolated cases of chloroquine resistance in *P. vivax* as well.

The range over which *P. falciparum* is resistant to chloroquine is progressively expanding and the level of this resistance is growing in Southeast Asia, South America and tropical Africa, and it is now spreading with varying intensity into almost all countries endemic with respect to tropical malaria [2,34]. Meflokin, which has been introduced into practice in recent years, will apparently be unable to radically solve the problem, inasmuch as resistance to it has already been documented in a number of zones, and even in ones in which it had not been used previously [23,32,33,39]. The possibility is not excluded that resistance will be developed to other new drugs as well—artemisin and galofantrin, inasmuch as their effectiveness is not presently reaching 100 percent.

This situation dictates the need for developing approaches to “reviving” previously introduced antimalaria drugs to which resistance has been developed, and primarily rehabilitating chloroquine, in addition to following the traditional direction of seeking antimalaria drugs that could be held in reserve. The search for nonspecific biologically active drugs which, when used in combination, make the parasite's “primary targets” in the parasite-erythrocyte system more accessible to the antimalaria drug, or which inhibit parasite systems that inactivate specific drugs, may turn out to be productive in overcoming the drug resistance of malaria. Such research is inseparable from studying the mechanisms by which antimalaria drugs exert their specific activity and the mechanisms of drug resistance.

The mechanisms of action of chloroquine and resistance to it are not yet understood. There are a number of hypotheses reinforced by the corresponding experimental research. The possibility is not excluded that resistance to chloroquine is associated with a number of mechanisms combined under one key mechanism. Drug

resistance may be the result of impaired accumulation of the drug in the parasite-erythrocyte system. A reduced concentration of chloroquine discovered in model experiments in erythrocytes infected with isolated chloroquine-resistant *P. berghei* and *P. falciparum* as compared to erythrocytes infected with sensitive agents is explained by some authors by a decrease in the number of receptors having an affinity to chloroquine on the surface of erythrocytes infected by such parasites [15,28]. It was shown that resistant parasites eliminate chloroquine 40-50 times faster than sensitive ones, given an identical initial concentration of chloroquine in the parasite [10].

The possibility is not excluded that accumulation and retention of the drug is associated with the state of the membranes of the parasite- erythrocyte system. The role of  $\text{Ca}^{2+}$  ions, which act as mediators in a number of the living cell's physiological processes, and particularly as regulators of many membrane processes, attracts attention from the standpoint of explaining this phenomenon. The concentration of  $\text{Ca}^{2+}$  ions is regulated by the activity of the calcium pump, the function of which is maintained by the activity of the enzyme  $\text{Ca}^{2+}, \text{Mg}^{2+}$ -ATPase and by  $\text{Ca}^{2+}$ -binding proteins (calmodulin etc.). Research on drug resistance in cancer therapy served as the basis for studying the role played by  $\text{Ca}^{2+}$  ions in achieving the effect of chloroquine. Multiple drug resistance of neoplastic cells—one of the principal problems of cancer chemotherapy—extends not only to drugs with a similar mechanism of action but also to ones having fundamentally different ones [1], including drugs not previously employed in therapy. Study of the molecular principles of such resistance permitted the hypothesis that multiple resistance of neoplastic cells is the result of a universal mechanism associated with elevated “outflow” of a specific drug from the cell. This is an obstacle to accumulation of the drug in a resistant cell in concentrations toxic to it. This hypothesis made it possible to suggest that suppression of leakage of a specific drug from the cell should promote an increase in its concentration to a level lethal to the cell, and a resistant cell would find itself sensitive to this higher concentration (considering that resistance is a relative concept, reflecting the capacity of a cell/organism for withstanding the usually employed or somewhat higher doses/concentrations of a specific drug).

Because  $\text{Ca}^{2+}$  ions play a regulatory role in cell function, and particularly in permeability of cell membranes, attention was turned to biologically active compounds capable of blocking a cell's calcium channels and thus blocking leakage of substances from the cell. Verapamil (isoptin), which is used to treat cardiovascular diseases and which is a calcium channel blocker, was found to be capable of restoring the effect of cancer drugs by (so it is believed) inhibiting their active “outflow” from a resistant cell [29]. Discovery of not only resistance induced by drugs in malaria parasites but also resistance to drugs of a fundamentally different mechanism of action permitted a number of authors to suggest a hypothesis

concerning the universality of the mechanism behind the drug resistance of malaria parasites [29], something close in nature to multiple resistance in neoplastic cells. Data obtained from using a combination of verapamil and cancer drugs opened up a new direction in malaria chemotherapy.

It was discovered in experiments *in vitro* that verapamil combined with chloroquine completely restores the sensitivity of *P. falciparum* clones from Southeast Asia and Brazil to chloroquine, with no change occurring in the effect of chloroquine on sensitive parasite cells. The verapamil concentration was similar to that which resulted in restoration of the drug resistance of neoplastic cells exhibiting multiple resistance [29]. Electron-microscopic study established that while verapamil caused insignificant morphological changes in parasites of chloroquine-resistant *P. falciparum* clones, its combination with chloroquine led initially to swelling of parasite vacuoles, typical of chloroquine, followed by degenerative changes in the nucleus, mitochondria and other organelles observed in chloroquine-sensitive parasites exposed to the drug [19].

Subsequent research established that other  $\text{Ca}^{2+}$  ion channel blockers, a number of tricyclic antidepressants—desipramine, protriptyline, imipromine and others, and the tricyclic antihistamine drug cyproheptadine (peritol) are capable of restoring the activity of chloroquine and raising the activity of quinine and quinidine against *P. falciparum* resistant to these drugs. There is an indication that the antihistamine drug ketodiphene is relatively effective for some tropical malaria patients when combined with sulfadoxine [17].

A positive effect was achieved *in vitro* by desipramine and antidepressants similar to it when combined with chloroquine in relation to chloroquine-resistant *P. falciparum* clones [10,30,36], and *in vivo* in *Aotus lemurinus lemurinus* monkeys infected with isolated chloroquine-resistant *P. falciparum*. An effect was achieved in mice infected with isolated chloroquine-resistant *P. berghei* when cyproheptadine was combined with chloroquine [27,36]. The concentration of verapamil and desipramine in the *in vitro* research was equal to the concentration of these drugs in the plasma of persons treated in accordance with the indications for direct use of these drugs [10,35,38]. It was shown *in vitro* that verapamil and desipramine increase accumulation of  $^3\text{H}$ -chloroquine by isolated chloroquine-resistant *P. falciparum*. Moreover a direct dependence was revealed between resistance to chloroquine and the level of accumulation of  $^3\text{H}$ -chloroquine [10,25].

Despite meticulous research *in vitro* and *in vivo*, primarily in oncology, opinions concerning the mechanism of multiple resistance are not unanimous. A number of hypotheses exist, based on different genetic changes in cells identified as possessing multiple drug resistance [1,3,16]: selection of cells with an altered toxin transport system [40,41], mutations in the gene coding the protein serving as the target of the specific drug, changing its

affinity for the toxin [8], and appearance of cells that are superproducers of the target protein [11-13]. Observations show that when multiple resistance exists, resistance is most pronounced toward the substance in response to which it was developed, while it is less pronounced toward other substances in relation to which multiple resistance appeared. It is supposed that multiple resistance is brought about by complex intracellular changes governed by numerous factors. They primarily include elevation of the synthesis of transmembrane surface glycoprotein with a molecular weight of 150-170 kD (P150-170) or with a molecular weight of 19-22 kD (P19-22), varying depending on resistance to different groups of substances [4,6,7,9,20-22,30,37].

As was indicated above, the enzyme  $\text{Ca}^{2+}$ -dependent ATPase is responsible for maintaining a physiological concentration of  $\text{Ca}^{2+}$  in the cell. Its inhibition impairs active transport of  $\text{Ca}^{2+}$  across the membrane. A pH-metric procedure was developed in the USSR making it possible to estimate the activity of  $\text{Ca}^{2+}$ -dependent ATPase and the degree of its inhibition by various substances [4]. This procedure made it possible for the authors to reveal a number of new inhibitors of  $\text{Ca}^{2+}$ -dependent ATPase, including ones used in medical practice, and to differentiate them in relation to degree of inhibition. The following decreasing order of psychotropic drugs was established in particular: tricyclic antidepressants, neuroleptics and anticonvulsive tranquilizers. Azaphen and aminazin, which we selected as the most active inhibitors, revealed the highest potentiating effect upon the activity of chloroquine in rodents with malaria elicited by isolated chloroquine-resistant *P. berghei* (the research was conducted jointly with N. R. Dadasheva and Ye. V. Maksakovskaya). The possibility is not excluded that  $\text{Ca}^{2+}$  transport is supported not only by the function of  $\text{Ca}^{2+}$ -dependent ATPase. According to our data (obtained jointly with N. R. Dadasheva and Ye. V. Maksakovskaya), the antihelminthic drug praziquantel, the activity of which is extremely low in relation to this enzyme, also potentiates the effect of chloroquine against the same isolated parasite. It was shown *in vitro* that in males infected with *Schistosoma*, praziquantel causes rapid accumulation of  $\text{Ca}^{2+}$  in muscle tissue cells as a result of contracture [5]. These data permit the hypothesis that the potentiating effect of praziquantel in relation to chloroquine is associated with interaction of the former drug with phospholipids in the cell membrane, making it more permeable to  $\text{Ca}^{2+}$ .

It is interesting that all  $\text{Ca}^{2+}$  transport inhibitors studied thus far as drugs by which to overcome the resistance of malaria agent to specific drugs irrespective of the mechanism of their pharmacological action possess schistosomicidal activity to one degree or another. They include the antidepressants mentioned above [14,18,24,31,42], and the antihistamine drugs ketodiphene, cyproheptadine and pizotifen [36], which is consistent with our observations pertaining to aminazin, azaphen, triflazin and praziquantel. There are data indicating that malaria parasite absorbs  $\text{Ca}^{2+}$  ions intensively in the course of its

development [26]. Hence blocking of this process cannot by itself reflect upon the parasite's vital activities, and it may possibly become more sensitive to unfavorable effects.

Thus the possibility of restoring the antimalarial activity of chloroquine, and perhaps even of other antimalaria drugs, doubtlessly deserves serious attention. Further research is needed in this direction. It must be aimed at finding substances capable of effectively restoring the activity of various antimalaria drugs and developing optimum combinations of antimalaria drug and an activating ingredient that are safe to man.

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[Text] Human health is determined by natural environmental factors associated with man's individual activity, with the society's activity and with the social situation. The negative effect of anthropogenic environmental changes, which has grown in intensity in recent decades, and mass population migrations are eliciting apprehensions concerning the future of mankind's existence in the absence of extreme, large-scale measures [6,32]. It is surprising why the list of unfavorable factors affecting the human body contains only those associated with living conditions, diet and occupational activity [1,6,33]. This is despite the fact that the numerous factors of man's life experience carry a rather large share of the responsibility for the disturbances in his ecology. Antibacterial and antitumor chemotherapy has generated the problem of opportunistic infections [46]. Chemotherapy was one of the factors that delayed the possibility of effectively fighting tropical malaria for 20 years (if not more) [10,18,42]. The massively employed antiparasitic drugs, the aromatic heterocyclic compounds (derivatives of quinoline, pyrimidine, benzimidazole and nitroimidazole), possess potential mutagenic (carcinogenic) action owing to their capacity for disturbing the three-dimensional structure of DNA [51,64]. We cannot exclude accumulation of "silent" mutations as a result of mass use of these drugs. Expression of these mutations at the individual level or within particular population

groups can occur as a result of "genome stress" [69] in response to chemical, radioactive and other kinds of promoters.

Consideration of these factors led to the "biologization" of the fight against parasitic disease vectors, and creation of a well substantiated system by which to fight them [4,37]. Cancer drugs are being sought among compounds lacking intercalary action [51,64].

The possibility that drug intolerance may develop, that aminoglycosides may develop toxic action, and that dihydropyridine derivatives may develop a mutagenic effect is being seriously evaluated [12,15,21]. Pomerantsev [21] raises the problem of pharmacotherapy to an even higher ethical level, associating an unfavorable effect not only with the pharmacological preparation but also with the fact of its prescription. The author emphasizes the psychological significance of the dependence of man's "quality of life" on the use of medicine. At the same time even though the reality of the harm of polypragmatism is fully understood, we are assured that anti-infection therapy "by all possible means" is sensible in the clinical treatment of internal diseases [15].

Since the time of Paul Ehrlich, anti-infection therapy has been viewed from the aspect of the specific action of a drug. However, clinical and field experiments revealed differences in the effect experienced by groups of patients differing in their encounters with disease agents [24-26,28,29,47]. As early as in the 1930s Moshkovskiy [13] demonstrated the importance of the state of the patient's immune system to the end result of chemotherapy of malaria. Around 40 years ago, responding to a proposal by Ye. M. Tareyev, I was able to modulate clinical manifestations of infection by nonspecific pharmacological agents against therapeutic three-day malaria. Certain components of malarial paroxysms—chills, fever, headache, hemodynamic changes—were prevented. When the patient required rest, attacks of fever were completely prevented. Thus the possibility of eliminating the clinical manifestations of infection by nonspecific drugs was demonstrated. The most interesting result of the research was reduction of the level of parasitemia and even disappearance of parasites together with cessation of fever; parasitemia returned when the paroxysms resumed [16,30]. The possibility of relieving or preventing chills, fever and headaches in the presence of arterial hypotension by means of morphine, pyrazolone derivatives, acetylsalicylic acid and caffeine can now be explained easily by suppression of the production of interleukine-1 and prostaglandins and stimulation of the production of corticosteroids and so on. The antiparasitic effect of antipyretics may depend on suppression of the parasite's production of so-called "high-temperature shock protein," acquired by a merozoite for penetration into an erythrocyte and formation of a parasitophorous vacuole [66].

The accomplishments of molecular biology in decoding the mechanisms by which the agent penetrates into the host's tissue and by which the parasite is accepted by

these cells, and the features of its protein production and energy metabolism are being used primarily as a means of seeking new chemotherapeutic drugs, surmounting or preventing resistance of parasites to chemical compounds, and creating vaccines [36,39,40,66]. At the same time the possibilities of biological action upon the agents of parasitic diseases resulting from activation of an immune response or directly, as in the case of treating viral and some bacterial infections in oncological practice, is sufficiently real. The possibilities of acting upon parasitic disease agents by way of the cytokine system and by means of immunotherapy and parachemotherapy are examined below.

#### Action by Way of the Cytokine System

Recombinant interleukine-1 (rIL-1) and rIL-2 are used to stimulate immunogenesis as an alternative or a supplement to chemotherapy. In the case of a cancerous process, production of IL-6 [53], the activity of which is superior to the activity of IL-2 over time, is stimulated by means of recombinant tumor necrotizing factor (rTNF). The concentration of IL-6, which is one of the stimulators of C-reactive protein production, is elevated in the presence of neoplastic processes, which permits us to classify IL-6 as an antitumor factor [55]. IL-4, an activator of T- and B-lymphocytes and of proliferation of blood elements, was discovered to have the capacity for suppressing tumor growth by enriching cellular infiltrates with eosinophils and macrophages [71].

Efforts have been made to use rIFN and rIL or their inducers against helminthiasis. It was shown that the ability of different lines of mice to rid their intestine of mature *Trichinella* correlates with the level of IL-2 production [74]. IL-1 induces a granulomatotic reaction in the presence of schistosomiasis. Production of TNF, which activates granulocytes and organization of granulomas, increases later on [45]. We [11,17] discovered a correlation between the multiplicity of affliction and severity of echinococcosis on one hand and the extent of decrease of IL-1 level on the other. This is why stimulation of IL-1 production in the presence of echinococcosis deserves attention; when their production is induced in the body, rIL-6 and rIL-4 are a promising treatment of alveolar echinococcosis. It should be kept in mind at the same time that hyperproduction of IL-4 and IL-5, which promote formation of IgE and differentiation of eosinophil precursors [68], can also lead to inadequate amplification of allergic reactions.

IL-1 suppresses development of *Plasmodium falciparum* culture in hepatocytes, apparently by activating production of C-reactive protein [56]. Stimulation of the production of IL-6, which is a promoter of megakaryocyte maturation [52], can help to eliminate thrombocytopenia in the presence of visceral leishmaniasis, and repeat malaria infections. It was discovered at the same time that IL-2 stimulates growth of *Leishmania mexicana amazonensis* promastigotes, possibly by direct action on the parasites [54]. Administration of rIL-3, which stimulates growth and differentiation of blood

cells and fat cell growth factor, to mice resistant to *Leishmania major* infection results in the death of animals owing to an increase in the number of uninuclear cells in which the parasites can multiply [49,50].

The next group of cytokines widely used in treatment of viral infections and neoplastic processes are the interferons (IFN) [7]. Resistance of mice to dermal leishmaniasis correlates with their ability to produce IFN- $\gamma$  in response to *Leishmania* antigens [39,67]. It should be noted that IFN- $\gamma$  elicits destruction of tissue forms of *P. falciparum* after sporozoites penetrate a hepatocyte, at the same time that the activity of IL-1, which is achieved through a hepatocyte (see above), prevents the parasite's penetration into the cell. IFN- $\gamma$  is apparently an inhibitor of *Plasmodium* growth [56]. IFN- $\gamma$  suppresses growth of *T. gondii* in human fibroblasts by inducing enzymatic transformation of tryptophan, needed by the parasite, into N-formylkynurenine [62].

We discovered a significant decrease in the levels of IFN- $\alpha$  and IFN- $\gamma$  in one-chamber echinococcosis, correlating with the multiplicity of affliction, with the location of the process and with the severity of the disease course [17,27]. As with IL-1 production [11], IFN levels were most greatly reduced when the process was located initially in the lungs or when multiple affliction occurred, including of the lungs. Reduction of IFN levels in the latter case corresponds to the process's generalization. In the first group of patients we can suspect a weak response by the liver's immune apparatus or insufficient antigenic activity of the disease agent strains that initially invade the lungs, as is noted in the literature [2,9,35].

As we already noted earlier [17], there is doubtless interest in using, as desensitizing agents in chemotherapy of the acute and subacute stages of helminthiasis, inhibitors (cyclooxygenases) of the production of prostaglandins (PG's), which are derivatives of methylindolacetic and isobutylphenylpropionic acids (ibuprofen, indomethacin, voltaren). While these drugs do not reduce the activity of parasiticidal drugs in the presence of trichinellosis, they do suppress the specific cell reaction to *Trichinella* antigens, reduce the concentration of circulating immune complexes and raise the level of complement [17,23]. Cyclooxygenase inhibitors, which reduce production of PGE<sub>2</sub> and PGF<sub>2</sub>, are especially indicated against a massive *Trichinella* invasion accompanied by a severe diarrhea syndrome. There is no time delay in freeing the intestine of mature *Trichinella* in this case [23,43,72]. Prescription of indomethacin against severe salmonellosis eliminates diarrhea on the backdrop of a sharp decline in PGE<sub>2</sub> and PGF<sub>2</sub> [34]. It should be kept in mind at the same time that specific treatment of chronic helminthiasis complicated by erosive-ulcerous affliction of the mucous membrane of the stomach and small intestine, would suitably be combined with drugs such as sukralfat that stimulate PG synthesis. This promotes improvement of mucus excretion, improvement of circulation in the wall of the mucous membrane and its fastest possible healing [8].

Intensified production of leukotriene-4, the product of the action of lipoxygenase on arachidonic acid, by macrophages was discovered in the presence of Chagas's disease, the chemotherapy of which has not yet been developed [73]. It was established that this cytokine facilitates binding of the parasite with the surface membrane of the macrophage and myoblast, and endocytosis, which leads to activation of phagocytosis coupled with destruction of the parasite, and in parallel to dissemination of promastigotes. We cannot exclude the possibility of capitalizing on the mechanism of modulation of leukotriene production as a way to affect *Trypanosoma cruzi*.

### Immunotherapy

Besides the classical immunological methods of affecting a disease agent—serotherapy and vaccination, modern medicine possesses new ones based on a knowledge of the molecular mechanisms of the mutual relationships between host and parasite, and of the pathogenesis of infectious diseases.

Immunotoxins—monoclonal antibodies conjugated with a toxic drug (ricin, metatreksat, daunomycin) and directed against membrane receptors of target cells—are used in oncological practice in the presence of lymphoproliferative processes [48]. In the case of HIV infection, such antibodies, which are targeted on the epitope of the virus envelope on the cell surface, suppress protein production and viral replication [63]. Intracellular immunotherapy made it possible to introduce the gene for human IFN- $\alpha_2$  under the control of a type I HIV regulatory element into the lymphocyte genome with the help of a retrovirus [38]. Subsequent infection of the lymphocyte by HIV results in active production of IFN- $\alpha_2$  and the death of HIV. In the case of lymphoproliferative processes in which expression of IL-2 receptors on cells is uncontrolled, the task is to suppress this expression with the corresponding monoclonal antibodies [3,31,70].

The possibilities of such immunotherapy against parasitic diseases are difficult to determine as yet. At the same time we cannot exclude the possibility that monoclonal antibodies against so-called intermediate molecules serving as receptors on the membrane of an erythrocyte infected with *P. falciparum* and promoting adhesion of the latter to the microvessel endothelium [40,59], can find a place in the treatment of complicated tropical malaria. One of these receptors—the glycoprotein CD36, which is similar to thrombocyte glycoprotein IV, expresses itself differently in different persons [40]. At a high level of expression, the parasite's affinity to it is revealed, which may be responsible for the varying predisposition toward formation of cell conglomerates near vascular walls, vascular occlusion and thrombosis. *Leishmania* amastigotes possess receptors for complement component C3 on their membrane surface; intracellular existence of parasites is impossible without binding of this component [58]. Revelation of molecular mimicry as a mechanism by which the parasite adapts to

the host's organism can partly be utilized in developing the immunotherapy of parasitic diseases.

### Parachemotherapy

Moshkovskiy [14] coined this term for a pharmacological effect on cells and tissues afflicted by a disease agent. Parachemotherapy is presently being used to overcome the resistance of *P. falciparum* to antimalaria drugs. The activity of microsomal monooxygenase—an enzyme participating in the metabolism of xenobiotics—is significantly elevated in a *P. berghei* strain resistant to chloroquine [19]. Prescription of chloroquine together with a monooxygenase inhibitor—a copper-lysine complex Cu(Lys)<sub>2</sub>—significantly raises the sensitivity of *P. falciparum* to chloroquine [22]. Research is developing most actively in the direction of using calcium antagonists as agents restoring the sensitivity of *P. falciparum* to chloroquine. Antagonists of calcium transport are widely used in the treatment of internal diseases (suppression of the ion-exchange mechanism of Ca<sup>2+</sup> transport) and allergic states (impairment of Ca<sup>2+</sup> transport through receptor operational channels in cell membranes) [5,12]. Verapamil and other dihydropyrazine derivatives and tricyclic antidepressants such as desipramine impair outflow of Ca<sup>2+</sup> through the cell's plasma membrane by the potential-dependent pathway [41,57]. It is believed that both types of compounds bind with a P-glycoprotein, which is expressed on the erythrocyte membrane and which works as a Ca<sup>2+</sup> "suction" pump. We cannot exclude that modulation of production of leukotriene-4 by lipoxygenase inhibitors (see above) may promote an increase in the effectiveness of the chemotherapy of Chagas's disease. The action of IFN- $\gamma$  against toxoplasmosis can also be viewed in the same aspect. Immunogenesis "amplifying cell" inducers such as cycloheximide may be used [20].

### Conclusion

Specific chemotherapy is an important method of treating parasitic diseases, and it will improve as mutual relationships between host and parasite at the molecular level are determined more precisely. At the same time there remain a number of diseases for which chemotherapy has hardly been developed, or is far from perfection (echinococcosis, trypanosomiasis). Even with active chemotherapy, when the immune status of the host is disturbed, an effect is not produced or secondary infection quickly arises [14]. In the cases above, mobilization of physiological (immunological) defense mechanisms or the corresponding substitution therapy is necessary. Use of cytokines is presently the most realistic. When we develop the methods of their use we need to account for the multiplicity of cytokine functions and their close intercorrelation. Noting the good prospects of lymphokines (IL-2, IL-4) as pharmacological agents, Paul [61] emphasizes the strict temporal (in relation to the course of immunogenesis) and local confinement of their action, the "short range" of the latter in natural conditions, and in connection with this, the need for developing methods by which to deliver cytokines to the

target. Stimulation of IL-1 production may intensify the inflammatory process, which is observed in the presence of the high concentration of circulating immune complexes [44] typical of parasitic diseases.

Use of rIL-4 and rIL-6 or induction of their production in the body is a promising means of treating patients with alveolar echinococcosis. It should be kept in mind at the same time that IL-4 may inhibit production of IFN- $\gamma$  [54,60], a cytokine, the level of which is dramatically reduced in the presence of echinococcosis and which correlates with the severity of illness [17,27]. The most realistic treatment of echinococcosis patients today is to use IFN inducers in combination with chemical drugs. Use of rIFN and IL as supplementary agents in the treatment of drug-resistant infection by *P. falciparum* is promising to a certain degree. Employment of these cytokines against protozoan infections in which cells of the immune system are afflicted requires careful research, considering that the direction of the action of cytokines can vary. Use of IL-2 in the treatment of patients with subclinical *Leishmania* and *Toxoplasma* infection can lead to its generalization. Use of cyclooxygenase inhibitors not only in the specific therapy of *Trichinella* infection [17] but also in the acute stage of other helminthiasis as desensitizing drugs appears promising. Intracellular and other methods of immunotherapy must be looked at as a means of affecting disease agents against which chemotherapy is found to be unsatisfactory. Thus we can possibly use "immunotoxins": In the presence of American trypanosomiasis for example, we can introduce a chemical preparation (for example 5-nitroimidazolylthiadiazole) into the infected cell by means of monoclonal antibodies to the corresponding receptors on the surface membrane of the myoblast. It would be interesting to test the action of monoclonal antibodies to C3 receptors on the membrane of the corresponding cells as a means of preventing generalization of toxoplasmosis. Development of modern methods of immunotherapy of parasitic diseases will be promoted by revelation of the mechanisms behind molecular mimicry of their agents. Use of biological methods in the treatment of parasitic diseases should promote attainment of the effect of immunotherapy at a lower dose of specific chemical preparations, and possibly reduce the need for their repeated prescription.

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#### Evaluation of Tularemia Control by Epidemiological Stations

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[Article by S. V. Shulyarenko, Rovno Oblast Epidemiological Station]

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[Text] Transition of public health to new forms of management presupposes justifying the necessary outlays in support of various measures, including preventive ones. The evaluation given to epidemic control efforts by epidemiological stations depends basically on the level of infectious morbidity, which in the case of so-called "controllable" infections is determined by the volume and quality of preventive immunizations. The "expense" approach prevails in this case, where work is said to be positive if it ensures the absence of morbidity or if sporadic cases of illness arise irrespective of the volume of immunizations. It is known in the meantime that even when a population is not immunized in its entirety, morbidity drops dramatically; however, as the volume of preventive immunizations increases, and correspondingly as the outlays increase, their effectiveness progressively declines, and in the final analysis, it is extremely difficult to completely eliminate disease within confined territories. We need to find that volume of immunizations which would maximally correspond to the social and economic interests of the society.

Given the diversity and frequency of manifestations of infection, it would hardly be possible to select one solution to cover all contingencies. At the same time deaths and disability are hardly ever observed with some

infectious diseases, while clinically severe forms are encountered rather rarely, which makes it possible to evaluate the effectiveness of epidemic control from a feasibility standpoint to a significant degree. One such infection is tularemia. According to published data [2] mortality associated with tularemia is 0.5 percent, primarily as a result of pulmonary and abdominal forms. In a clinical analysis of 314 cases of tularemia recorded in Rovno Oblast during the 1955 outbreak, 3 percent of the cases were severe forms, and no deaths were observed.

The department of especially dangerous infections of the Rovno Oblast Epidemiological Station studied natural tularemia foci and improved epidemic control measures over the course of almost three decades. That most of the oblast's rayons were enzootic was confirmed by isolation of disease agent cultures from water, and from ixodid ticks and rodents, and by outbreaks and sporadic illness among people. After research was conducted in the 1950s, tularemia foci were classified as the floodplain-marsh type. However, intensive land improvements destroyed the old ecosystems, and in most places the conditions for further circulation of the disease agent became unfavorable. Nor should we neglect to note the role played by significant changes in the nature of the work of rural inhabitants: These changes, primarily mechanization of processes such as hay mowing and the harvesting of various crops, dramatically reduced the risk of infection. They made it possible to update the classification of natural foci in the oblast (only less than 10 percent of them are presently of the floodplain-marsh type), and later to repeal the enzootic status of a number of territories, with the consent of the Ukrainian SSR Ministry of Health, which made it possible to gradually reduce the annual number of immunizations in the 1980s by a factor of 8-10—that is, to 5,000-6,000 persons.

Natural foci of tularemia, as well as of other zoonoses, are characterized by high resistance to external effects, and it is difficult to achieve full recovery of a particular territory, as is confirmed by isolation of disease agent cultures from reclaimed land, and by positive results in serological tests on predatory birds [3,4]. Observations showed that tularemia did not establish itself on reclaimed land. Land improvement reduced the area of natural tularemia foci, but territorial gaps atypical of the Polesye were created between foci, which prevent the appearance of diffuse epizootic outbreaks. Considering the above, we can assert that even when preventive immunizations against tularemia are carried out in the oblast at minimum volume, the probability of development of massive outbreaks is excluded. At the same time sporadic cases may appear. Therefore it would be natural to consider what might be the optimum volume of immunizations—that is, one which would reflect the social and economic interests of the society to the greatest degree.

Unfortunately there is no information in the literature on the economic losses caused by tularemia morbidity. It may be supposed that they do not exceed those of

menacing infections [1] such as anthrax (R764.5) or typhoid fever (R890.3). Calculations carried out on the basis of information from the oblast's medical institutions and data from the oblast statistical administration showed that public health outlays are 558.7 rubles with regard for running tularemia tests on 1,000 immunized individuals, while when losses of production associated with immunizing workers are taken into account, the total losses attain R3,358.7. Consequently the economic losses associated with the increase in tularemia morbidity per case are equivalent to the decrease in the outlays associated with reducing the number of immunizations by 200-300. However, the society's social interests and the need to create a certain "strength reserve" as a way to prevent outbreaks probably do not allow a purely arithmetic approach, particularly in the face of such proportions. Obviously the amount the impact from reducing the volume of preventive immunizations exceeds the losses resulting from an increase in sporadic morbidity must be more significant (tenfold, possibly), depending on the conditions in the specific territory.

Thus if immunizations against tularemia are reduced, one of the criteria used in long-term evaluation of the activity of epidemiological stations in territories containing natural foci is the absence of outbreaks of sporadic cases, to the extent possible. Growth of sporadic cases of illness raises doubts about the adequacy of reducing the volume of tularemia immunizations; however, the evaluation of epidemic control work may be unclear, and it may depend both on the amount by which immunizations are reduced and on other specific conditions in the given territory.

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#### Moldova Suspends Border Crossing Due to Cholera Risk

AU2311165091 Bucharest ROMPRES in English  
1051 GMT 23 Nov 91

[Text] Chisinau [Kishinev], ROMPRES, 23/11/1991—The government of the Republic of Moldova reached a decision on steps to improve the situation at the customs office at Leuseni, MOLDOVA-PRES news agency reports.

Starting November 25, 1991 crossing through the customs of private persons, groups of tourists and businessmen is suspended until a special disposition is issued. The justification for that step are the limited transit capacity of the customs office at Leuseni, the growing tourist flow and the lack of elementary catering and accommodation facilities, which tenses interpersonal relations and deteriorates sanitation running the risk of cholera in the territory of the Republic of Moldova and in neighboring states.

#### Is Rift Valley Fever Threatening to Make 'Incursions' Into the Southern Regions of the USSR?

91WE0530 Moscow VOPROSY VIRUSOLOGII  
in Russian Vol 36 No 1, Jan-Feb 91 pp 82-83

UDC 616.98:578.833.1]-036.2([47+57]-13)

[Text] For a long time after an outbreak of a viral infection among sheep and humans in the Rift Valley (Kenya) in 1930, researchers regarded that fever as a rather localized "African exotic." Observations in the 1950s through the 1970s expanded existing notions about the range of the Rift Valley fever (RVF) to include regions of southern Africa and East Africa. In terms of the massiveness of numbers of those affected, the epizootic associated with that infection was particularly prominent in the UAR, where it caused the death of more than 200,000 farm animals, as well as illness among more than 30,000 humans involved in animal husbandry.

In subsequent years, new regions were brought into the range of the infection (Zimbabwe, the Sudan, and Mauritania), and the illness was noted to have a more severe course. Especially severe was the epidemic in 1977 in Egypt, where among the 18,000 clinically observed cases, some 4.4% presented with impaired vision and meningoencephalitis symptoms. The illness had a fatal outcome in 598 cases. The infection was also severe in that region in 1978. Based on those data, RVF came to be regarded as an extremely dangerous viral infection.

In a virological study of a group of fever patients, RVF was also identified among isolated viruses belonging to a genus of phleboviruses of the family Bunyaviridae. Also

identified was a group of patients seropositive for the RVF virus. A report on those studies<sup>2</sup> got the attention of participants in an international symposium on arboviruses that took place in Moscow in 1989. Recommendations were made concerning the need for additional confirmation of those still isolated observations, because, if confirmed, the spread of RVF in that region is of enormous scientific and practical significance.

The question arises, What are the reasons for the progressive migration of RVF and for the more severe course among affected humans? And how far will RVF spread? Clinical-epidemiological and virological analyses of the illnesses caused by the RVF virus have not yet provided clear answers to those questions. In addition to the opinion that native strains of the pathogen could be varying and could be becoming more virulent, there is another explanation—the virus is being brought into regions in which there is no interlayer of immunity among animals and humans.<sup>3-8</sup>

Among the various genera of mosquito-vectors of the virus, the principal role belongs to *Aedes* and *Culex* mosquitoes and is associated with ecology-altering factors such as widespread construction of levees and dams, as well as with rainy seasons. In analyzing those relationships, American specialists are performing comprehensive studies that include the use of satellite-derived information on local changes. An important place in that complex of operations is occupied by the refinement of techniques for diagnostics and for pathogen identification that takes into account a simultaneously circulating group of phleboviruses.

Thus, answering the extremely urgent question about how far RVF could spread and about the threat that that infection poses to the southern regions of the USSR requires additional research based on the experience garnered by Soviet virologists in ecological and geographical analysis of arboviruses<sup>1</sup> and a study of the RVF virus vectors that are possible for that area as a result of the changing ecological conditions.

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#### Sverdlovsk Harvesters Hospitalized for Unidentified Illness

91WE0466 Moscow IZVESTIYA in Russian 24 July 91 Union ed. p 8

[Article by A. Tarasov, special correspondent for IZVESTIYA, from Sverdlovsk, under the rubric "Incidents": "The Cause of the Illness Is Again Not Clear"; first paragraph is source introduction]

[Text] The next in a series of instances of Sverdlovsk residents becoming ill when working in the fields—this is the third time in three years—has been recorded.

IZVESTIYA reported the previous "unusual incident." Recall that in 1989, during the potato harvest at the Krasnoufimskiy Sovkhozm, there was a massive poisoning of students from Ural University. Last year, after weeding a carrot field at the Khramtsovo Sovkhoz, schoolchildren got sick. The target of the most recent incident was the Brusyanskiy Sovkhoz in Beloyarskiy Rayon. Workers of the Sverdlovsk association Vektor were assigned to labor in its beet and carrot fields this summer. But after only one day of farm work, six of the city people were hospitalized. The symptoms of the illness were virtually the same as those experienced in last year's incident and those experienced in the incident of the year before last. The most apparent of the symptoms is "drop foot"—the ankles of the victims will not flex under. The diagnosis: toxic "polyneuropathy."

And so, to date, over the last three years, a total of 222 Sverdlovsk residents have been stricken with this serious illness.

Studying the incident in detail are the oblast sanitary-epidemiological station and the oblast executive committee commission for investigation of emergency ecological situations. But whether any sense will be made of it, no one knows. Why not? After the university students were poisoned, the sanitary-epidemiological station forbade the use in the oblast's agricultural sector of a number of toxic chemicals, because the station was of the opinion that it was those chemicals that were at fault in the tragedy. And the chemicals used in 1990 were only a tenth of those used the year before. After the unusual incident in Khramtsovo, however, it was found that the field in which the schoolchildren had been working had not been treated with chemicals for years.

Analyses of soil, water, and vegetation samples from the ill-starred fields were done by more than just the oblast

sanitary-epidemiology station. The testing was also performed by chemists from Moscow, Kiev, and Leningrad; military medical personnel; the oblast station for plant protection; and the Institute of Chemistry of the Ural Department of the USSR Academy of Sciences. But the causes of the misfortune remained unexplained. Pesticide concentrations hazardous to health, which is where most of the specialists went wrong, were not found. Nor were commissions of the USSR Ministry of Health and the Ministry of Defense able to point to the root of the evil. In the meantime, it was decided at a session of the oblast council of people's deputies that the use of pesticides would be banned altogether.

And now another unfortunate incident. A representative of the oblast sanitary-epidemiology station stated that chemicals were not used this year on the potato and vegetable fields of the oblast, including those of the Brusyanskiy Sovkhoz.

Apparently, we will not be able to solve the mystery of the "Sverdlovsk syndrome" without highly skilled specialists and highly sensitive instruments. But as long as those operations are financed out of the local budget, the hopes for conducting comprehensive, in-depth testing are not very great.

#### **USSR, Lithuania Tighten Borders, Cite Health**

92WE0073A Helsinki HELSINGIN SANOMAT  
in Finnish 26 Oct 91 p C3

[Article by Martti Valkonen: "USSR Closes Its Western Borders; People Can Get Into Finland, Romania"]

[Text] Moscow (HS)—The Western Soviet Union border-crossing points into Poland, Czechoslovakia, and Hungary will be temporarily closed for health reasons. As of the beginning of November, Soviet citizens will be able to travel to Western Europe only by land—mainly via Finland and Romania—if the reports are true.

Pressures to try to go to Finland may grow rapidly.

In White Russia, the border town of Brest, on the Polish border, will be closed to travelers. In the Ukraine, the town of Uzhgorod, on the Czechoslovak and Hungarian borders, will be closed because the endless stream of people has given rise to an "epidemiological bomb."

On both borders, Soviet tourists, with their cars, are forming lines kilometers long on which the wait to get through customs inspection at the border may take days.

Neither border town's sanitary facilities, restaurants, and hotels are sufficient to take care of the travelers.

Closing the border-crossing points will affect Soviet tourists and traveling Soviet citizens with private invitations who usually cross the border back and forth to engage in trade.

According to the RIA [expansion not given] news agency, on Friday afternoon, the Lithuanian Government decided to close its own border-crossing point into Poland to Soviet citizens. However, citizens of other countries and Soviet citizens residing in Estonia, Latvia, and Lithuania may still cross the border.

Grown to uncontrollable proportions, the burning desire of Soviet citizens to travel to the West, primarily on business trips, may quickly have reverberations upon Finland. Only those border-crossing points that lead to Finland and Romania are still open.

#### **Traders From South Blamed for Kursk Syphilis Epidemic**

PM0711152191 Moscow IZVESTIYA in Russian  
5 Nov 91 Union Edition p 2

[Vladimir Kulagin report under the "Direct Line" rubric: "Syphilis Outbreak"]

[Text] Kursk—In Kursk Oblast the oblast dermovenerology clinic is packed with syphilis patients.

The first reports of this terrible disease came from Pristenskiy Rayon back at the beginning of September this year. There 20 people infected with syphilis turned to their physician for help during a single week. And over the course of nine months 106 people have been treated, approximately half of them at the oblast center, S. Loktionov, chief physician at the oblast dermovenerology clinic, elaborated.

The medics are particularly concerned at the extremely wide age range of the patients—from 14 to 70 years. The social makeup of those who have contracted the infection is also varied: truckers (they are in the majority), cooperative workers, vocational and technical school students, hairdressers, and—a particularly dangerous aspect—workers in public catering and children's establishments.

As clinic Chief Physician S. Loktionov points out, the main "suppliers" of the disease are cooperative workers and frequenters of local markets from southern parts of Russia and from the Transcaucasus.

**Outbreak of Dysentery in Donetsk Region**

*OW0211173491 Moscow INTERFAX in English  
1423 GMT 2 Nov 91*

[Following item transmitted via KYODO]

[Text] A sudden outbreak of dysentery has been registered in Yenakiev, Donetsk region. Late last month about 100 people sought medical help with that complaint, 80 of them children under 7.

The emergency committee of the city council has reasons to suppose the cause was in the local dairy products dated from Oct 15 to 21.

Water can't be ruled out as a way of spreading infection. The milk plant is to be temporarily closed down, dairy products to be brought over from Gorlovka.

A case of typhoid has been registered in Sumy where secondary School No. 8 has been disbanded for an early vacation over this alarm. The sanitary inspection has discovered typhoid bacteria in drinking water. Warning has been issued concerning that, and the child taken ill has been hospitalized.

## FINLAND

### Flulike Fever Near Epidemic Stage

92WE0055B Helsinki HELSINGIN SANOMAT  
in Finnish 20 Sep 91 p 10

[Unattributed article: "Flulike Fever Caused by Bacteria Spreading Almost Epidemically"]

[Text] After a break of several years, the Finns are suffering from a flulike fever this fall that includes sore throats, coughs, headaches, and colds.

According to the Department of Health, the disease, which is caused by a small bacteria known as mycoplasma pneumonia, appears to have already reached the epidemic level.

Marjaana Kleemola, a medical specialist and head of the laboratory, confirms that the disease generally appears rather mild but, at worst, can develop into pneumonia.

"Mycoplasma has the characteristic that it can become epidemic every few years. Epidemics caused by this bacteria appeared among us in the 1970's and the 1980's. For a couple of years, it has been dormant. On the other hand, there appear to be more cases this fall. Actually, this should really be the time for a mycoplasma epidemic."

"Because a bacteria is in question and not a virus, medicine is effective—in this case an antibiotic. Penicillin, though, is not suitable; the medicine used should be erythromycin or tetracycline. But, if the disease is mild, medicine is not needed. The disease will cure itself," says Dr. Kleemola.

### Disease of Children and Youth

If the illness develops into pneumonia or if the cough and fever are very bad, there is reason to seek a physician's help.

The mycoplasma disease is particularly a disease of children, especially school-age children and young adults. It is spread primarily by expectoration, but there has to be close contact. For this reason, it readily infects one member after another in families and, likewise, spreads among soldiers in their barracks. The illness is rare among the elderly. Among quite small babies, it is generally milder.

Regular influenza caused by a virus has not yet appeared, but it will become a problem for the Finns around the New Year.

### Authorities Act To Keep Out Swine Fever

92WE0055A Helsinki HELSINGIN SANOMAT  
in Finnish 14 Oct 91 p 7

[Unattributed article: "Finland Prepares To Prevent Spread of Dangerous Swine Fever; Garbage Handling Tightened at Border Crossings"]

[Text] They are preparing to prevent the spread of swine fever in Finland by tightening garbage handling at harbors, airports, and border crossings. The fever has caused terrible losses in Central and Southern Europe.

Swine fever is a very easily spread viral disease. "The disease causes great economic losses because, when the fever appears, generally all swine on that hog farm must be slaughtered," says Aimo Hakkinen, veterinarian for the Province of Kymi.

"With the increase in travel, the risk of contagion has clearly increased," Hakkinen states. "It can come from products prepared from sick animals and even from the paper in which the products are wrapped."

Hakkinen also pointed out that hog farmers who visit comparable establishments in other parts of Europe should remember to be sufficiently concerned about hygiene the entire time.

The only effective method to prevent the arrival of the disease is to strengthen garbage handling at border crossings, harbors, and airports. Some of the border crossings have already begun taking precautions. The danger is especially concentrated in southeastern Finland, where traffic over the eastern border is continually increasing.

Hakkinen would also like faster communication regarding the incidence of the disease in other places. "Swine fever is in northern Germany but evidently also closer to Finland. For example, there is no information about the fever possibly being in the Soviet Union near our eastern border."

The disease was first observed in the United States during the 19th century. In Finland, the fever last appeared in 1917, but, in addition, the disease appeared in Norway at the beginning of the 1960's.

## FRANCE

### Influenza May Be Severe This Season

92WE0101A Paris LE MONDE in French  
13 Nov 91 p 15

[Article by Martine Laronche: "Strains in Stock"—first paragraph is LE MONDE introduction].

[Text] The flu virus is on its way. There is no time to lose in getting vaccinated.

The influenza virus has just been detected in eastern France in a few patients. "There is still time to get vaccinated, but without further delay," says Professor Claude Hannoun, of the National Influenza Resource Center for Northern France. "If the epidemic spreads, it may be severe, for the virus that has just been isolated—the same one as in 1989 (A/H3N2)—is particularly aggressive."

Influenza is capricious. Each year the virus changes appearance and strikes with more or less force. Although generally benign in young, healthy subjects, influenza is still the second-highest cause of mortality from infectious diseases in France after tuberculosis. In 1989, when there was a large epidemic, it was the direct cause of 4,000 deaths. The following year, on the other hand, the epidemic was much milder. A common illness, influenza strikes 8 to 10 million French people every year, but there is still no cure for it. Vaccination is presently the only effective arm against the illness.

In what has now become a ritual, the Influenza Study and Information Group (GEIG) presents the season's flu vaccine each year. The vaccine contains several viral strains chosen in accordance with the recommendations of WHO (World Health Organization) and the Ministry of Health. The strains, of which there are usually three, are selected based on variations in the virus. In France, the general health directorate and the National Health Laboratory assemble the different parties concerned (epidemiological surveillance officials, producers) in March, to decide the composition of the new vaccine<sup>1</sup>.

The influenza virus is versatile. Its transformations, which primarily affect group-A viruses, make it impossible to eradicate the illness. Changes occur in one of two ways: "gradual alterations" or "breaks." The first involves a slight antigen variation that triggers mild epidemics. "Breaks", on the other hand, correspond to radical changes that are much more serious. These sudden metamorphoses are responsible for the great epidemics that have marked the 20th century: the Spanish flu in 1918, the Asian flu in 1957, and finally the Hong Kong flu of 1969. At these junctures populations no longer have antibodies capable of neutralizing the new type of virus, unless it was prevalent in the not-too-distant past. Specialists say that the same viruses may reappear at intervals of several decades—the "resurgence" phenomenon. Thus, according to this theory, the 1957 epidemic virus was identical to the 1889 one. The 1918 Spanish flu virus is thought to have reappeared in 1976. Several cases of influenza due to an analogous virus were in fact isolated in American soldiers at that time. But the epidemic did not spread.

#### **The Virus and Birds**

"More recently, it was observed that the A/H1N1 virus of 1976 was analogous to a virus isolated in 1950 in the United States," explains Professor Michele Aymard, a virologist and director of the National Influenza Resource Center for Southern France. But what happens

to these viruses in between appearances? "The most plausible theory is that they are preserved in animals, particularly in birds," continues Professor Aymard. "Today, we are expecting to see a comeback of the Asian-flu A-H2N2 virus that circulated between 1957 and 1967. Well, we have strains all ready in our freezers to concoct a vaccine should that happen."

Who is a candidate for vaccination? People to whom the illness poses a threat due to their condition or occupation, says the Influenza Study and Information Group (GEIG). First and foremost, the elderly. About 80 percent of the deaths attributable to influenza involve subjects over 65 years of age. Their organism has little power to resist the assault, and there are many cases of bacterial superinfections. Yet despite virtually systematic vaccination programs, influenza has not totally disappeared from geriatric institutions.

Even when vaccinated, poorly nourished elderly people are especially fragile. "A poor nutritional status lowers the effectiveness of the influenza vaccine in older subjects living in institutions," comments Doctor Bruno Lesourd (Charles-Foix Hospital, Ivry-sur-Seine). And he recommends a special, enriched diet for them a few weeks prior to vaccination, to boost the effectiveness of the vaccine. People seventy years of age and older have received the vaccine free of charge since 1988. The same is true of persons suffering from certain long-term illnesses and for whom influenza poses high risks. They include diabetics whose illness cannot be controlled by diet alone, persons suffering from serious cardiac, renal, and respiratory insufficiencies, and, since 1990, AIDS patients.

The direct and indirect costs of influenza epidemics are very great, remarks the CNAM (expansion unknown). According to a study made in 1990 by health economics specialists<sup>2</sup>, the 1989 flu epidemic cost Social Security 2,425 million French francs [Fr], or Fr807 in medical costs in addition to Fr1,618 in absenteeism losses. The same specialists estimated that the cost to society was Fr16,695 billion: one more reason to get yourself vaccinated.

#### **Footnotes**

1. For the 1991/92 winter, the composition of the vaccine is as follows: A/Singapore/6/86 (H1N1), A/Beijing/353/89 (H3N2), B/Yamagata/16/88.
2. Professors Emile Levy, Pierre Levy, and Herve Lafarge of the University of Paris-IX-Dauphine.

## **GREECE**

#### **Resurgence of Malaria Cases**

*92WE0022A Athens I KATHIMERINI in Greek  
22 Sep 91 p 12*

[Article by Pinelopi Ghavra: "The Nightmare of Malaria Returns to Greece"]

[Excerpts] The nightmare of malaria has struck Greece again. The fact is that the cases of malaria that have appeared in our country in the past year have caused much concern; even concern that an epidemic will break out within certain geographical regions. This guarded secret of public health officials was revealed when certain scientists dared to say, "When it breaks out, we will all have to play catch up."

However, even more frightening than this fact itself is the means of transmission. Malaria is not only caused by infected mosquitos; it is also caused through blood transfusions, as has been shown in two cases. More specifically, malaria struck down a small child in the Ayia Sofia Children's Hospital, several days ago, after a blood transfusion, and another small child who was being treated at a hospital in the northern suburbs last year. Consequently, another aspect of the problem emerges: screening blood for malaria.

According to new facts that have come to the fore, the danger is real and will grow if measures for monitoring and controlling the disease are not intensified. Mr. Andreas Bambionitakis, an assistant professor at the University of Athens and the head of the laboratory for infectious and parasitic diseases at the Laikon Hospital, points this out. The professor pinpoints the entire problem on the continuously increasing entry into Greece of people originating from countries that have higher incidents of parasitic infection, and on the inability of the health services to monitor them.

Mr. Bambionitakis explains: "For quite a few years I have been alarmed by the progress of the disease, because I know that it will follow the laws of nature. There is a need for more information, instructions, and monitoring. And, there is an urgent need to organize on the level of health protection. We should not loose sight of the fact that as long as there are infected people circulating within Greece, especially when they gather in certain regions, it is possible that a significant number of small epidemics will break out."

So, the ague, as malaria used to be called, which literally mowed down people in Greece from the beginning of the century until 1940—and specifically in the regions of Lake Kopaida, the Strimon River, the Axios River, and Lake Karla—has reappeared shortly before the year 2000. It may not be fatal now, although a case at the Laikon Hospital ended in death a year and a half ago; but, who would have believed that in 1991 we would be running around for quinine.

Malaria can be either indigenous or clearly imported. Indigenous malaria developed in Greece as a result of the activity of infected mosquitos, and remains in the body for 30 to 40 years. It is possible for one species of malaria, called "Plasmodium malariae", to remain in the body for many years, though this happens rarely and with difficulty; and, for this reason, we had not had any cases in Greece for a very long time. Lately, however,

indigenous cases have reappeared, and the cases stemming from blood transfusions have been of special concern.

The professor emphasizes that in this situation the question that concerns us continues to be who is infected to a degree that they will either become sick or infect the appropriate mosquito that will in turn create indigenous cases and spread malaria. Wiping out malaria is like sweeping out a place that always has to be kept clean. There is a need for constant vigilance for this to be brought about....

Mr. Bambionitakis says, characteristically, that infectious diseases are brought in through the transportation system, and, consequently, the more people and goods come in, the more monitoring has to be intensified. The probability that infectious agents will be transported to an area that we had cleaned out in the past is now much greater. The efforts and measures that were employed in the past to cope with malaria and other infectious diseases have today proven insufficient. There are deficiencies of coordination in the monitoring of these people, which weakness is demonstrated by responsible health agencies' failure to register them.

Mr. Bambionitakis maintains that "it is unacceptable not to monitor, at this moment, Philippine women at the School of Hygiene because of a lack of staff. You can be sure that when the situation becomes known and takes on greater dimensions, certain people will run to the central authorities and extract money in the millions to conduct relevant studies. I can mention the characteristic example of my receiving 50,000 drachmas from the university to operate the laboratory, but I am not complaining. I explicitly state that the problem is not just economic."

The second link in the chain of disease is the mosquito, which is not found in the cities, but in areas with lakes and rivers (Thessaly, Lamia, Iliki, and Evros—that is, those areas where, at one time, the attempt to eradicate malaria by spraying was concentrated). Today, the mosquitos in question continue to exist, because there are still stagnant waters in the same areas.

Those immigrants that have lived in infested regions, such as southeast Asia and Africa, and who have come to our country in groups without being checked, could also be characterized as dangerous. If we were to settle these groups in some region containing an increasing number of mosquitos, we would automatically have present the two major factors for recirculating the disease. [passage omitted]

Mr. Bambionitakis was intensely concerned about the number of cases, which according to sources have reached 40 in all of Greece, and maintained that they have increased compared with other years. He even mentioned that he himself had examined seven cases in the last few months. [passage omitted]

The sensitivity of the medical officer of Lamia Province to the whole issue is characteristic, but also disturbingly unusual. A few days ago, as the professor emphasizes, he called him to indicate that there are quite a few Pakistanis from whom he would be drawing blood, which would be sent to Athens for the necessary tests.

The professor ended by saying: "In this way both they and the population will be protected. That is how the other provincial medical officers should be thinking, so that we will not reach the point of admitting into hospitals people in serious condition."

## ITALY

### Five Percent of Children Not Vaccinated

*92WE0042A Rome L'ESPRESSO in Italian 20 Oct 91  
pp 184-185*

[Article by Eugenio Celati: "Vaccination Dodgers"—first paragraph is L'ESPRESSO introduction]

[Text] Five percent of Italian children have no defense against polio or diphtheria.

Marta, a five-year-old child from Milan, died of diphtheria because her parents did not want to have her vaccinated. They are practitioners of "natural medicine." In Bovolone, in the province of Verona, another young girl, daughter of parents who believe in homeopathy, was not allowed to go to school because she was never vaccinated. The parents justified their action by stating that homeopathy, "a process that prevents sickness, activates itself and fortifies the organism's natural defenses." This is a formula, however, that did not work at all in the case of the young girl from Milan.

Both cases, reported in the press, conceal a little known fact: About five percent of Italian children, according to studies undertaken by the Higher Institute of Health, are not vaccinated against the three illnesses for which immunization is mandatory (polio, tetanus, and diphtheria), or they are very tardy in getting vaccinated. The enclaves where vaccination avoidance occurs exist in the north as well as in the south. In the former locations, it involves primarily "ideological" reasons (preference for alternative medicine), while in the latter, it involves cultural and organizational reasons.

According to research undertaken by Michele Grandolfo and Regina Santoro of the Higher Institute of Health in Naples, over 40 percent of children born in 1985 have not been administered the mandatory three-dose vaccination cycle by the age of two. Normally, the cycle is completed at the age of 11-12 months. Of those, one third had not been vaccinated at all. Better coverage was attained in Catania (17 percent avoidance), while in the other cities tested, be it in the north or the south, (Bari, Venosa, and Bologna), coverage basically paralleled

international standards (95 percent of children vaccinated within their second year of life). The paltry distribution of vaccinations in Naples resulted in seven cases of polio, of which only two were linked to persons arriving from abroad.

In their research, Grandolfo and Santoro fault the method in which vaccination infrastructure is organized in Naples. "The rate of vaccination," stated the researchers, "is close to 100 percent if the offer of vaccination is actively pursued and if the follow-up process seeking out those not vaccinated is better organized." The research indicates that the tendency of "skipping" one or two doses does in fact exist, based on lack of erudition by the families. In some cases, the family doctors themselves are not fully familiar on how to deal with the purported temporary side effects of vaccination (breathing difficulties with no fever present, imagined allergies) "which in 95 percent of the cases have proven to be false."

Finding a solution to the ideological problem appears to be more difficult given the inclination of some to natural medicines. Some homeopaths are not contrary to vaccinations which, paradoxically, is the medical practice that is closest to homeopathy itself (preventing an illness by using the very same illness). Others are decidedly against it. An official recognition of the vaccination "objectors" has come from the Court for Minors in Genoa, according to which avoidance of this practice "does not comprise a reasonable risk." The case of the dead child in Milan unfortunately demonstrates the contrary.

## SWEDEN

### Chlamydia Spreading Among Youth

*92WE0082D Stockholm DAGENS NYHETER  
in Swedish 12 Oct 91 p 10*

[Unattributed article: "Chlamydia Common Among Youth"]

[Text] Every sixth teenage girl who comes to the youth clinic to get contraceptives has chlamydia. Fully half of them do not have symptoms.

This was the conclusion of a doctoral dissertation submitted by Vivi-Anne Rahm. It is based on a compilation of seven studies in which 3,000 teenage girls in Gävle participated for five years.

The result was surprising. Fully 60 percent of the girls with chlamydia had no symptoms at all. When they later passed on the infection, their partners had no symptoms either.

She found no correlation between chlamydia and the age of the individuals at the time of infection or their first sexual encounter. Nor did she find an increased risk of infection among teenage girls who took the pill. The risk of getting chlamydia was, on the contrary, linked to lifestyle.

### Agency To Test Whooping Cough Vaccine

92WE0082F Stockholm DAGENS NYHETER  
in Swedish 23 Oct 91 p 5

[Article by Astrid Johansson: "Vaccine To Be Tested on 60,000 Children; Whooping Cough in Children Com-batted in Joint Study with United States"—first paragraph is DAGENS NYHETER introduction]

[Text] Beginning February of next year, SBL, the National Bacteriological Laboratory, will begin the largest testing of whooping cough vaccine ever made. A total of at least 60,000 children during a three year period will be testing three vaccines.

In principle, all parents who wish to have their newborns vaccinated against whooping cough will be able to do so by autumn 1993.

"We are aiming at having a new, effective whooping cough vaccine in use for general vaccination by 1996," said Patrick Olin, children's health doctor at the [first word illegible] Children's Hospital, and leader of the project.

The study, which will be presented to the nation's pediatricians at a physicians' conference in November is being undertaken jointly with American health authorities, The Karolinska Institute, and the child health facilities of several county administrations.

#### Fifty Thousand Newborns

In the first round, the parents of 10,000 two-month-old babies will have the chance to participate in the testing. The selected areas are Umea, Orebro, Norrkoping, Linkoping, Jonkoping, Kalmar, Lund, Nacka, Tyreso, Danderyd, Taby, Sundbyberg, Bromma, Spanga, Ekerö, south Stockholm's medical district, and part of Varmdo.

At the beginning of 1993 the study will be broadened to include at least 50,000 Swedish newborns who will be tracked until the autumn of 1995.

The vaccines to be tested are an American so-called whole-cell vaccine (which is produced from dead whole whooping cough bacteria), and two acellular vaccines which are produced by flushing out the cellular parts of the bacteria. One, a Belgian, contains two components. The other, a Canadian, contains five. It is presently unclear how many components are needed in order to obtain effective, long-term protection against whooping cough.

#### Controversial

The vaccines will be given together with the diphtheria and tetanus vaccines, as a triple vaccine.

The whooping cough vaccine has been a complicated and controversial issue in Sweden since 1979 when we were the only country in the world to stop vaccinating for whooping cough. The whole-cell vaccine then used was

not regarded as offering sufficient protection. And the risk of side effects, one of them fever, were deemed to be too great.

A Japanese vaccine, tested in Sweden at the end of the 1980's on 3,800 children, was never registered. That vaccine's protective value was not regarded as sufficient either. In addition, the pharmaceutical division of the National Board of Health and Welfare felt that the connection between the vaccine and four deaths which occurred in vaccinated children could not be excluded with certainty.

#### American Help

"In the United States, whole-cell vaccination has been the subject of much criticism," said Patrick Olin. As a consequence, the big vaccine manufacturers have striven hard to produce alternative variants of the component vaccines.

For this reason, American taxpayers' money will finance the new Swedish whooping cough testing. The National Institutes of Health, a part of the U.S. Department of Health, Education, and Welfare, is investing 90 million kronor to have the vaccines tested on Swedish children.

#### A Component

The 10,000 children who will begin to be vaccinated in February of next year will be divided into four groups, one of which will receive only diphtheria and tetanus. Which children will get what will not be known by either parents or medical personnel. The vaccines are given at two, four, and six months of age.

"We know that we will encounter various kinds of mild side effects, especially from the whole-cell vaccine. Fever pains may occur. But the risk is small, and we find the risk acceptable in that parents even today can request permission to get that type of vaccine."

Parallel with the larger study, a single component vaccine in Gothenborg will be tested on 3,000 newborns. The studies are conceived along the same lines and the results will be compared.

"When completed, we should have a sufficiently comprehensive basis for choosing which whooping cough vaccine we should use in Sweden," said Patrick Olin.

#### Female Elk Herds Hit by Virus

92WE0082D Stockholm SVENSKA DAGBLADET  
in Swedish 14 Oct 91 p 8

[Unattributed article: "Virus Hits Hundreds of Female Elk"]

[Text] Just as the starting gun was fired for this year's elk hunting season, the alarm on elk disease was sounded.

"It is just like the seal disease in 1988. We do not know why the animals are dying," said Herbert Lundstrom, district veterinarian in Vanersborg.

The first death from this strange illness occurred four years ago. An elk cow was found dead. The veterinarians were unable to ascertain the cause of death. Now the number of dead animals is 400-500 head; 20 new cases a week are reported, and experts are baffled. In the long run, the entire elk herd could be in danger.

"It appears as though only elk cows are affected. I know of only one case in which a bull died of the mysterious illness," said Herbert Lundstrom.

#### Probable Virus

The elk disease is most severe in the southern parts of the district of Alvsborg, in the area around Ulrikehamn, but has also affected Smaland, Halland, Dalsland, and Bohuslan.

Herbert Lundstrom believes it is a viral disease, a so-called "slow virus," something similar to the one that affected the seals on the west coast in 1988.

"It has the same type of symptoms. Other signs suggest that it resembles a virus which affects cattle. But we have not succeeded in isolating the infectious element."

Experts from the National Veterinary Institute have contacted colleagues in the United States and Canada—where the elk herds are large—in an effort to solve the mystery. So far, without result. The current thinking is to catch the calves of dead elk cows in order to examine whether the infection is genetically transmitted.

What is the appearance of the dead animals? "The common symptom is ulceration around the muzzle and eyes, in the throat, and in other mucous membranes, and in the hoof cleavage. The animal has diarrhea also. Farmers have reported seeing this. The feces look more like cow pies than normal elk droppings. Often the animal has eaten tree bark, which elk ordinarily do not do."

How can one identify an infected elk? "They look sick, are nearly blind. They show signs of brain damage, exhibit no instinct to take flight. Instead of turning tail, they may run toward a hunter who comes near. Some animals just lie apathetically in the field, waiting to go to elk heaven."

Is the meat dangerous to eat? "We don't know. But if a hunter brings down an animal suspected of being infected, he must report it to the district veterinarian. There the animal is disposed of and the hunter gets back his expenses," said Herbert Lundstrom.

#### UNITED KINGDOM

##### Report Notes Success of 'Opt-Out' Hospitals

92WE0060 London THE DAILY TELEGRAPH  
in English 10 Oct 91 p 9

[Article by David Fletcher, Health Services Correspondent]

[Text] Patients are gaining from the creation of self-governing hospitals because waiting times are being cut and more people treated, an independent examination says today.

It finds that most of the 57 trusts are on target financially despite the well-publicized problems of a minority.

The survey, carried out by the business advisers Newchurch and Co., will provide welcome ammunition for Mr. Waldegrave, Health Secretary, when he addresses the Conservative conference today.

It says: "On the basis of chief executives' responses, the overwhelming majority of trusts has exhibited a measurable improvement in service provision.

"For example, in acute units patient activity has been increased, in priority units the movement of in-patients into a community setting has been speeded up, and in the ambulance services response times have been improved."

Three-quarters of the trust hospitals have reduced their waiting lists, with cuts ranging between 5 and 50 percent, and 85 percent of hospitals have increased patient throughput, one of them by 27 percent.

The study says that, although it is early in the financial year, 78 percent of trusts believe themselves to be financially on target, or underspent, for the year—compared with only 35 percent last year.

It says many of the trust which had overspent in the past are now balancing their budgets but gives a warning that the position for many is extremely tight.

"Increased activity is placing a financial strain on the trusts where it is not matched by increased funding. The trusts are reluctant, however, to discourage extra cases because they wish to secure the volume of work for the future.

"The financial strain is compounded by the fact that revenues from extra-contractual referrals are reported as generally below budget, as are referrals from GP fund-holders."

The report says that trust status is freeing hospitals from layers of bureaucracy, enabling them to respond better to local needs. But it sounds a note of warning about the lack of guidance to trust hospitals about financing limits and the future allocation of capital.

"Until this area is clarified the trusts will continue to be seriously hindered in their future capital budgeting and business planning. Financial strain is also being placed on the trusts as a result of activity exceeding budgeted and contracted levels which will not be funded this financial year.

"It is doubtful that trusts can continue at their current activity levels without additional funding."

The report calculates that the first 57 trusts account for 1,800 million of the NHS budget, 110,000 employees and more than 40,000 beds—representing 14 percent of the NHS.

If the second wave of 104 applications for trust status are all approved, one third of total health spending will be by trusts and 31 percent of the 840,000 NHS employees will be working for self-governing trusts.

Ms. Harriet Harman, Labour's Shadow Health Minister, said yesterday that nearly 300,000 operations were cancelled last year.

She said figures given to her by regional health authorities showed that 291,386 operations were cancelled in England, more than one in ten of those scheduled.

"The Government's cash squeeze on the NHS means that doctors are being told to cut down on non-emergency operations. People who have been booked in for their operation are told they will have to carry on waiting."

#### **Government Puts Limit on Hospital Waits**

92WE0108A London *THE DAILY TELEGRAPH*  
in English 31 Oct 91 p 10

[Article by David Fletcher: "Maximum Two-Year Wait for Treatment Promised"]

[Text] A guarantee of hospital treatment within a specified period—never more than two years—was pledged by the Government yesterday.

Patients attending accident and emergency units are to be guaranteed immediate attention and a named nurse will be responsible for each patient's care.

New standards of care never before provided by the NHS are set out in a 23-page Patient's Charter, copies of which are to be sent to every home in the country at a cost of more than £2 million.

The Charter marks the Prime Minister's personal commitment to the NHS.

"This is the first time that any government has put its weight behind a set of rights which all patients are entitled to under the NHS," Mr. Major said. "It is also the first time a government has introduced national standards for the NHS."

Under the charter, each hospital will publish maximum waiting times for each type of operation. Patients will be guaranteed treatment by a specific date and nobody will wait more than two years—otherwise they will be sent to another hospital.

Patients will also be given a guarantee that any complaint they make will be investigated and that they will receive a full and prompt written reply. Launching the charter, Mr. Waldegrave, Health Secretary, said: "We are determined to make this work in the interests of patients."

#### **What It Will Mean**

The nine standards of service which the NHS will aim to provide are:

- Emergency ambulances should arrive within 14 minutes in towns and 19 minutes in the country
- Patients must be seen immediately when attending an accident and emergency department.
- Out-patients must be seen within 30 minutes of their appointment time.
- Operations must not be cancelled on the same day they are due to take place. If an operation is postponed twice, the patient must be admitted for treatment within a month.
- A named nurse, midwife or health visitor will be responsible for each patient's care.
- Hospitals must make arrangements for any continuing care before a patient is discharged.
- Information should be given to friends or relatives about the progress of treatment, subject to the patient's wishes.
- Arrangements must be made to ensure that everyone, including disabled people and those with special needs, can use NHS services.
- Respect should be paid to privacy, dignity, religious and cultural beliefs.

In addition to the charter standards, Mr. Waldegrave said health authorities were being asked to develop their own local standards.

"These will include the timing of first out-patient appointments, of waiting times in accident and emergency departments and of taking patients home after treatment where they are using NHS transport," he said. "Staff that patients meet in hospitals will wear name badges. Patients and visitors will also be helped to find their way round hospitals through inquiry points and better signposting."

He said the standards would be enforced through the terms and conditions laid down by health authorities' contracts with hospitals.

## WEST EUROPE

The charter received a general welcome from doctors, nurses and patients' associations, but several said there was no agency to ensure the standards were met and no extra money to pay for the improvements. A spokesman for the British Medical Association said: "If all the welcome commitments and targets set out in the charter are to be met, either more resources will have to be supplied or current services will suffer."

The National Association of Health Authorities and Trusts welcomed the charter as "a positive step in the right direction" and said it had long argued that the rights of patients should be set down.

Mrs. Linda Lamont, director of the Patients' Association, said that if the charter "helps patients to realise what they should be entitled to expect that is all to the good."

The Royal College of Midwives welcomed patients' rights to detailed information on local health services. Miss Ruth Ashton, general secretary, said: "This will help child-bearing women make decisions over their local choice of maternity care."

Mr. Robin Cook, Labour's shadow health secretary, said the charter was "toothless." "No charter for patients can be taken seriously unless it restores the right of patients to go to the hospital of their choice," he said.

"Giving nurses a name badge does not help if the nurses' posts are vacant because the hospitals cannot afford to fill them."

### Error Rate in Mad Cow Reporting

92WE0059 London THE DAILY TELEGRAPH  
in English 11 Oct 91 p 9

[Article by David Brown, Agriculture Correspondent]

[Text] Thousands of cattle which are being destroyed under the Government's BSE eradication measures do not suffer from mad cow disease at all, the Ministry of Agriculture admitted yesterday.

But the Ministry, which has paid farmers 22 million in compensation, denied that farmers were faced with a new "son of BSE" epidemic even though about 15 percent of the 37,468 cattle destroyed so far have fallen ill from other causes.

The denial came after Mr. Ben Wolfe, a Hampshire farmer, received a letter from an official expressing

alarm about the number of sick cattle originally diagnosed on his farm as BSE victims which subsequently proved negative in tests. Mr. Brian Mott, divisional veterinary officer in Hampshire, wrote: I fully understand that you find this state of affairs alarming, as we do ourselves.

"It does appear that your cattle are showing a clinical disease entity which cannot be distinguished from BSE but which on post-mortem pathological examination proves not to be BSE."

Mr. Wolfe, 68 pressed yesterday for a veterinary investigation into the mystery deaths. His company has lost more than 60 cattle under BSE eradication measures, but out of the last 18 suspect cases, 13 proved negative after brain tests.

"I have been in this business all my life and using knowledge of stockmanship I knew that something different was wrong. The trouble is that under the scheme the heads are removed and the rest of the animal destroyed within a couple of days."

"We don't get the results of the brain tests for weeks and by then it is too late to carry out other tests."

"I noticed that these animals seemed to have very little resistance to other illnesses. We had quite a lot of mastitis."

Farmers are paid 654 for cattle killed and subsequently confirmed to be BSE victims. They are paid an extra 164 under a "slaughter of the innocents" clause if the animals are found to be clear of the disease despite displaying symptoms.

The Ministry denied last night that there was a new mystery cattle disease in the country.

"The use of the word alarming in the divisional officer's letter was inappropriate," it said.

The Ministry accepts a level of error in diagnosis of around 10 to 15 percent as an acceptable safety margin to prevent any BSE cattle entering the human food chain.

But a spokesman said: "There will be instances where this percentage is higher."

The Government expects BSE to decline steadily from next year. The epidemic is believed to have been caused when food rations contaminated with the remains of sheep infected with scrapie, a similar fatal disease, were fed to cattle.

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